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JUNE 2009

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"...what I heard blew me away."
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**Prologue1 35 Watts Stereo
Integrated Amplifier with EL34**



**Prologue2 40 Watts Stereo
Integrated Amplifier with KT88**



**Prologue3 Dual Mono
Valve Preamplifier**



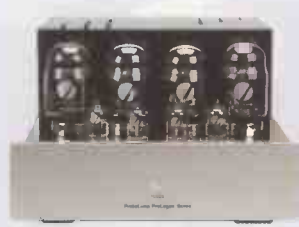
**Prologue4 35 Watts Stereo
Integrated Amplifier with EL34**



**Prologue5 35 Watts Stereo
Amplifier with EL34**



**Prologue6 70 Watts Stereo
Amplifier with EL34**



**Prologue7 70 Watts Stereo
Amplifier with KT88**



Prologue8 Valve CD Player



**Dialogue1 36 Watts Stereo
Integrated Amplifier with EL34**



**Dialogue2 36 Watts Stereo
Integrated Amplifier with KT88**

PrimaLuna

Music is a universal pleasure that should not be denied to anybody. So, too, the beauty of music reproduced by valves. To make available to a wider audience the seductive, silky sound of the vacuum tube, PrimaLuna has developed a range of all-valve amplifiers with the construction, power and sonic performance of high-end electronics, but with one unique, inimitable feature: prices that can only be described as 'entry level'!

Since the arrival last year of PrimaLuna's first model, the ProLogue One, the audio community has been unable to contain its joy nor reign in its praise, because PrimaLuna has revolutionized the whole concept of 'affordable audio.' Commencing with a pair of integrated amplifiers with prices more typical of mundane, solid-state products, PrimaLuna has shown other manufacturers that compromises in fit and finish, styling and facilities are unnecessary.

And PrimaLuna has shown the music lover that 'high end' performance and pride of ownership can be made available to aficionados on a budget. But don't take our word for it. Audition your preferred ProLogue or the newly-launched Dialogue models at the PISTOL Music dealer of your choice. And prepare your wallet for a pleasant surprise!



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welcome

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verdicts

- ● ● ● ● OUTSTANDING
- ● ● ● EXCELLENT
- ● ● GOOD
- ● ● ● MEDIOCRE
- ● POOR
- £ VALUE

ELECTRONIC MAGAZINE

Go to our website www.hi-fiworld.co.uk to buy an electronic version of this magazine, individual issues or a subscription. At present we do not offer back issues, but hope to soon.



From the massive Usher Be-10 loudspeakers, weighing in at 92 kilos apiece, to the mighty Musical Fidelity Primo preamplifier costing the best part of £8,000, there is no shortage of physically and/or sonically impressive kit in this month's *Hi-Fi World*.

Effusive as I am about both (see p10 and p30 respectively), plus a wide range of other more affordable gear that has proved tremendously impressive this month - from Electrocompaniet's EMC 1 UP high end CD player

to Audiosmile's Kensai miniature loudspeakers (on pages 26 and 42 respectively) - the one *truly* great product we showcase in this month's issue is the only one you can't buy anymore, Sony's classic cassette Walkman portable...

It was thirty years ago this month that Sony Corporation unleashed a device upon the world that wasn't just a great music player, but changed the way in which the world listened to music *per se*. Without the Walkie, Apple's iPod would never have been possible, and the latter's considerable sales success still pales by comparison! The Walkman was the blueprint for modern mass music consumption all around the world, and yet such was the quality of its engineering and the precision of its build that it can still be talked about with an entirely straight face in a serious hi-fi magazine such as this. Read all our Sony Walkman Anniversary feature on p112.

Of course, Compact Cassette was much maligned and misunderstood during its heyday, but the best machines could eke tremendous sound quality from its tiny tape, almost capable of matching vinyl records. Now though, LP is our only remaining analogue format, and remains the best domestic sound source in my opinion, able to serve up a breathtakingly realistic rendition of the music hidden within those wee black plastic grooves. Naturally, for best results you need the right hardware, which is why this month's group test on p15 takes a close look at six of the best mid-price disc spinners - all of which are able to extract sparkling sound from the venerable Long Playing record. Enjoy!

David Price, editor

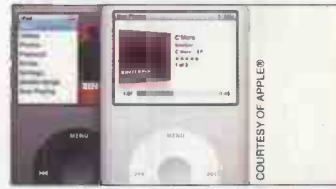
testing

To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.



Distributed by Seymour Distribution Ltd 86 Newman Street London, W1T 3EX Tel: +44 (0) 20 7396 8000 Printed by St.Ives, Plymouth Tel: +44 (0) 1752 345 411
Our Agents in Malaysia Millennium Hi-Fi & AV Simon Chang Showroom & office, 500-1-3 First Floor Wisma Indah (Shen Court), Jalan Tun Razak 50400 Kuala Lumpur, Malaysia
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news



HIGH FI

Although the market for mid-priced hi-fi seems to have fallen off a bit, sales of budget equipment remain strong – as do, rather surprisingly – those of high end. With this in mind, many readers may be interested to hear that Europe's largest exhibition for high-quality electronic equipment, the HIGH END show in Munich, soldiers on. At the time of writing, the number of exhibitors registered is already nearly as high as last year: 229 exhibitors have now signed up for HIGH END 2009, which will be presenting approximately 700 brands. Now in its 28th year, it is a favourite show of the *Hi-Fi World* team, and always provides a great diversity of weird and wonderful kit to see and hear – especially those of the valves and vinyl variety! The show runs from the 21st to the 24th May 2009, at the M,O,C, Munich, Lilienthalallee 40, 80939 München-Freimann, Germany. For more details call +49 2027 02022 or click on www.HighEndSociety.de.

THREE FOR ALL?

MP3 is going 'high definition' – Thomson have announced a new MP3HD format which they describe as "the ultimate audio quality experience", no less! In truth, it is a 'lossless', packed format to compete with the likes of FLAC and Apple Lossless – giving to all intents and purposes 'CD quality' uncompressed 16bit, 44.1kHz resolution – but uniquely it is claimed to be backwards-compatible with compressed MP3. Thomson say, "MP3HD files are MP3-compliant files that include additional side information, which, together with the MP3 portion of the file, can be decoded by an MP3HD-capable decoder. Standard MP3 players can simply play the MP3 portion of the file." At the Thomson website (www.all4mp3.com) there is a freely downloadable MP3HD command line encoder and a Winamp plug-in. The encoder is available for Windows and Linux, and the Winamp plug-in for Windows.

This is an interesting development, but one for which the demand is questionable. There are other pre-existing 'lossless' codecs currently in use, such as FLAC (Free Lossless Audio Codec) which has proved popular with computer audiophiles, while Apple Lossless is generally believed to be slightly inferior sounding but integrates beautifully with Apple's superb iTunes music manager application. Of course, the prospect of a lossless system that ties in seamlessly with MP3 is an appealing one – considering that MP3 is still a very popular music file format – but it remains to be seen how many MP3 users will be interested in higher sound quality. The other question mark is that of royalties rates and rights management – MP3HD is proprietary and therefore not expected to be free, unlike open source FLAC.



ATILLA THE ONE!

The new Atilla is said to "bring legendary Gryphon performance and styling to a new level of affordable cost and minimal complexity", no less. Gryphon founder and design supremo Flemming E. Rasmussen's background in the fine arts as a skilled painter explains the sleek satin black brushed aluminum chassis and gleaming black acrylic faceplate featuring an illuminated Gryphon logo when powered up. There are no rotary controls to disturb the simplicity of the uncluttered fascia, and the massive chassis with recessed heatsinks rests firmly on two front damping feet and a single rear conical spike to ward off mechanical vibration, the company says. The Atilla is essentially two independent mono devices for reduced crosstalk and minimal interchannel interaction. The short signal path employs extra thick copper traces and an absolute minimum of wiring. The lavish display and extensive control circuits are powered independently via a separate power supply in order to eliminate any risk of noise contamination. The circuit features zero negative feedback, a large dual mono Holmgren toroidal transformer, mil spec printed circuit boards and a unique microprocessor-controlled passive volume control for the most transparent attenuator ever conceived, it is claimed. Price is 6,950 Euros. For more information, click on www.gryphon-audio.com.

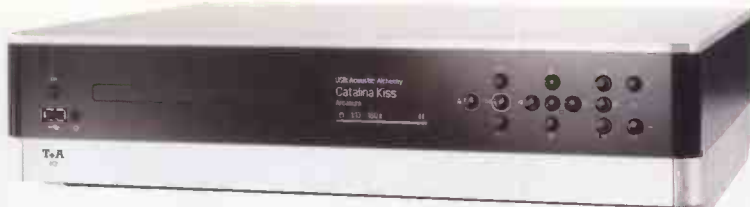
BRITISH OPEN

Avid Hi-Fi is having an open day on Wednesday 24th June 2009, to allow prospective clients, press, retailers, distributors and enthusiasts to visit the company's manufacturing facilities and audition new and existing future products, plus there's the chance to see a turntable being built and tested. Located on a restricted-access MOD site, visitors are limited to only 20 persons, starting at 10am until 3pm. Call +44(0)1480 457300, fax +44(0)1480 457057 or email info@avidhifi.co.uk to confirm your place now!

SOUND AND VISION

The new T+A K2 DVD receiver is claimed to combine "superb sound, outstanding picture quality, simple operation, materials of exceptional quality and timelessly elegant design - in as compact a cabinet as we could make". The K2 and its sister

- the K2 M, equipped with a Streaming Client - form the core of a hi-fi or virtual surround system. According to personal preference, they can be used as the basis for a classic stereo system with two loudspeakers or as a virtual surround system with an additional centre loudspeaker and subwoofer; there is no provision for rear speakers. Since the K2 is fitted with five power amplifiers, each generating a continuous power of more than 150 Watts, it can even be used to provide stereo sound in an adjacent room, with independent volume control. The newly developed DVD mechanism has been carefully optimised to reproduce music from CD to a very high standard, the company says, while the D/A converters are first-class Wolfson items. The sophisticated integral scaler is capable of upscaling DVD data to 1080p, and passing it on via HDMI and YUV outputs. A USB port on the front panel enables LPCM, MP3, photo JPEG and film files to be transferred and reproduced. The integral VHF RDS tuner offers good reception characteristics and delivers radiotext. The K2 M offers access to all the new media, since it is equipped with Streaming Client hardware. The machine's rear USB port gives access to MP3 players and USB media sticks, while Internet radio and network music servers can be exploited via LAN or WLAN, and even iPods can be connected and controlled. The large-format, high-resolution VFD screen is graphics-capable. Size is 107x440x355mm and weight 12kg. For more information, click on www.taelektroakustik.de/engl/.



LISTENING PANEL

Advanced Acoustics new Orbis Acoustic Panel range is said to, "take room treatment to the next level in terms of acoustic improvement and visible pleasure". There are currently two panels in the range; the Wall Orbis to cut out the negative effects of the first reflection and reduce the reverberation time in the room and the Corner Orbis to soak up the low end energy that builds up in corners and in so doing reduce the boom and muddy sound that can occur in rooms. Both panels are free standing, complemented with plinths and stand at 5ft (1.5m) tall. They have continued to use their professional grade open cell acoustic foam and the soft but durable open weave linen cloth. It is the shape and resulting massive surface area and amount of premier quality foam used in each acoustic panel that makes them so effective, the company claims, offering even absorption along the whole frequency range. The panels are not made of wooden frames wrapped with inch thick foam, but rather are solid core acoustic foam sculpted from fresh block foam using the latest technologies.

They meet with furniture fire regulations and are acoustically effective. Cost is £250 per panel. For information, click on www.advancedacoustics-uk.com/

Z STARS...

Onkyo has a new line of receivers for 2009, said to "elevate the home entertainment experience to new levels, with sensationally improved performance, exciting new features and enhanced value for money". The range comprises four new budget/midrange home cinema receivers, including the new TX-SR607 [pictured] featuring the all-new Dolby Pro-Logic IIz mode which introduces a vertical aspect to the sound field through the addition of left and right-channel front height speakers. In recognition of the increasing importance of the gaming sector some also feature four new Games Modes. Audyssey Dynamic Volume is fitted as standard to all new receivers, which is claimed to ensure that frequency response and surround envelopment are adjusted to be consistent at all volume levels. Onkyo's new U.Port (short for Universal Port) is also fitted, a custom-designed connection (set to appear on other Onkyo systems and components) that allows owners to add optional Onkyo accessory modules with extended functionality, such as the upcoming UP-DTI DAB+ radio tuner and UP-A1 iPhone/iPod dock, all connected via a single cable that carries power as well as audio/video signals. Factor in Full HD Audio decoding,

HDTV-capable HDMI switching, HD Video upscaling via HDMI (TX-SR607 only), fascia-mounted 3.5mm minijacks (for portable devices), Powered Zone 2 + Zone2 line-outs plus a raft of other audio-enhancing technologies and they're versatile beasts. The new receiver range starts at £250 for the TX-SR307 and tops out at £500 for the TX-SR607. For more details see www.onkyo.co.uk or call +44 (0)1628 473350.



TALENT SHOW

System Audio's new Talent loudspeaker is claimed to produce an "open, vivid and full sound that has all the hallmarks of physically large loudspeakers yet everything you hear comes from boxes whose fronts are smaller than a sheet of A4 paper". The design sports solid wood cabinets; custom-built drive units with shielding and crossover networks that are the result of some unconventional technical thinking, it is claimed. The Talents can be fixed to the wall with a single screw; mounted on a bookcase, on the floor, on a table or wherever there's a bit of free space, and come finished in black or white paint with fronts in complementary black, grey or white. Power handling is 80W, with 8 Ohm impedance, a claimed frequency response of 50-40,000Hz (+/- 3dB) and 86dB sensitivity. Vital statistics are 210x330x120mm and price is £269 per speaker. For more details visit www.symmetry-systems.co.uk or call +44(0)1727 865488.

POWER PLAY

Harman Kardon has a new HK990 2.2-channel stereo integrated amplifier out, said to be the company's most powerful ever, plus a matching HD990 CD player. The 150W RMS per channel stereo amp has a choice of discrete optical and digital inputs or an analogue-only signal path, as well as fourth-generation Real-Time Linear Smoothing (RLS IV), 2.2-channel EzSet/EQTM room optimisation, dual subwoofer outputs and an "audiophile-quality" phono preamp section. The HK 990's High-Resolution Synchronization (HRS) link allows compatible Harman Kardon CD players to lock themselves to the external clock of the amplifier for a jitter-free connection. Also featured are six analogue stereo inputs, four digital inputs (two optical and two coaxial), two phono inputs for connecting record players with MM/MC cartridges and two XLR inputs.

The Harman Kardon HD 990 CD player is optimised for precision playback, employing twin Analog Devices AD1955 D/A converters. A digital processor, based around a 32bit DSP, ensures that distortion is kept to a minimum. Two real balanced outputs with dual Diamond Class A output stages, using XLR connectors, and optical and coaxial inputs and outputs, are also featured. Like the HK 990, the HD 990 has an HRS link for clock synchronization and data transmission.

Both units have an elegant, minimalist design with gracefully rounded corners, a gloss-black top panel and dark-graphite lower panel, accented by soft-white illumination. On the HK 990, the familiar Harman Kardon volume knob has been transformed into a dynamic white-lighted ring bound by a thin aluminum band. All but the essential controls have been removed from the brushed-aluminum front panel, leaving a clean backdrop against which to display the polished-aluminum Harman Kardon logo. For more information, click on www.harmonkardon.com.



MUSIC OF THE SPHERE

Niro Nakamichi's new £1,575 5.1 Channel Surround Sound System uses only two front speakers and a mini subwoofer, and the package also contains a Digital amplifier/Processor and a remote control. The NIRO SSS (spherical surround system) is claimed to achieve "ultimate clarity and localisation of sound", through a patented system that produces a spherical surround sound field that envelops the listener. It employs two enclosures that contain five drivers, plus a mini subwoofer "to reproduce a true 5.1 channel surround sound", the company says. This system not only enables the reproduction of sound from the rear of the listener without the need for speakers being positioned there, but also spreads sound over a vertical expanse, it is claimed. A compact six channel digital power amplifier is fitted, supplying 3x30 Watts to the base speaker, 2x30W to the top speaker, and 50W to the sub. The Digital Amplifier/Processor supports the main multichannel formats, Dolby Digital, DTS, Dolby Pro-Logic II Processing. For more information, call Metropolis Music on +44(0)1435 867438 or click on www.metropolis-music.co.uk.



SMALL WONDER

Marantz's new £499.90 M-CR502 CD DAB receiver is a neat little all-in-one music system that's said to "offer outstanding music production, together with class-leading styling and flexibility". Sporting an aluminium cabinet finished with a shiny black fascia, it packs 2x50W in stereo mode or 4x25W bi-amped, and there's a subwoofer output too. Onboard playback options include a CD drive which will handle regular, as well as CD-R/RW, and MP3 and WMA file discs – plus a DAB/FM and AM tuner with 50 presets. Additionally, the USB input allows music playback from music stored in a USB-enabled digital music device, and there's a straight auxiliary input. For the iPod, there's a choice of either the Marantz IS201 or IS301 docks. Clock and sleep functions are included, and there's a headphone output too, plus tone controls. For more details, click on www.marantz.com.



SUPERSUB

Monitor Audio's new AW-12 subwoofer is said to offer "a heightened level of sophistication and deeper, cleaner bass frequencies from a compact, generously specified and beautifully crafted design". Every component has been developed specifically for the AW-12, including the heavily engineered front-firing 12" C-CAM driver and 500W Class D amplifier. The amplifier and its complementary high efficiency switch mode power supply are able to deliver full power with a continuous rating, equal to most other subwoofers rated at 1,000 Watts, Monitor Audio claim. Finished in gloss black or white metal-flecked lacquers to complement Monitor Audio's lifestyle satellite speakers, and complete with aluminium side trims, the AW-12 sports top-mounted control of volume and EQ. Price is £900, available now. Click on www.monitoraudio.co.uk for more details.

SIXTY SOMETHING

"My ambition has never been to make loudspeakers that create sound for people chasing spectacular experiences, but to recreate the music caught on the recordings. I'm driven by my own curiosity towards these originals. It simply does not get more spectacular than opening up an uncolored window to the world of the recording." Thus speaks the eloquent head of research and development at Guru loudspeakers, Ingvar Öhman. His latest creation, the QM60 was originally designed as a laboratory instrument for a project researching the properties of human hearing. The low and mid frequencies are handled by a single mid/bass driver running from below 20Hz up to over 7 kHz, using titanium in the bobbin to control heat distribution and eliminate the eddy-losses in the low frequency range. Aluminum core copper wire for the voice coil is used, plus a double vented dust cap cavity and a distortion controlled undercut pole piece to linearize the force factor. For more details on this interesting device, click on <http://guruproaudio.com/>.





Metal Detectors

**If it's transparent
loudspeakers you crave,
David Price implores
you to seek out
Usher's new Be-10!**

Much to my *chagrin*, the only science I wasn't terribly good at was Physics - not a great admission for an electronics obsessed, internal combustion engine-fascinated fifteen year old. But then, a curious ability at Chemistry kind of made up for it. I'd never been particularly excited at the prospect of test tubes, Bunsen burners and fume cupboards (although the occasional opportunity to add water to acid was never missed), but somehow almost by accident, I took to it like a duck to water...

One of the reasons was learning about the Periodic Table. "Wow," I mused, "here's everything you need to know, all the chemical building

blocks mapped out in front of you - learn that and I've cracked it". Thus began my slavish, by rote, chanting of "H-He-Li-Be-B-C-N-O-F-Ne-Na-Mg-Al-Si-P-S-Cl-Ar-K-Ca". Although it wasn't quite as easy as "Every Good Boy Deserves Football" for my Music 'O Level', the mnemonic eventually sunk in and lo and behold, Chemistry GCE was a pushover!

Well, a decade or so (ahem!) later, my increasingly porous grey matter has retained little of my school science exploits, but one thing it does remember is the Periodic Table, and my interest in materials technology remains. That's why I'm still fascinated at the way loudspeaker designs choose different substances to make drive units - from plastic film membranes for electrostatics to slivers of metal for ribbons, or any number of variations of doped paper and plastic with conventional moving coil cone drivers. The fun thing is that there are no rules - aside from that the thing or bit that moves the air should be as light and rigid and unresonant as possible...

Oh, and I forgot the final dictate - with commercially available speakers at least - cost. Let's not forget that there's got to be a point in making them in the first place (i.e. the company's continued existence), so financial considerations hold sway. That's why most speakers use moving coil drivers (they're the cheapest and/or the easiest to source or make), and also why most moving coil drivers use plastic cones of one type or another. Again, the same sort of thing you make Coke bottles out of or dispense Shampoo from is never going to break the bank now, is it?

Still - before we get too 'knowing' and cynical about why the commercial reality of production loudspeakers is generally so far away from the theoretical ideal - let's not forget that this is only half the story. Just because you've got the best drive unit material doesn't guarantee you will have the best sound - you need to integrate those drivers with the cabinet and other drivers successfully before you even come close. However, what you can be sure about is that if you haven't got the best driver materials, you'll never be able to get the best sound.

And so to the Usher Be-10 - which makes a very earnest attempt to achieve the state of the loudspeaker art by using not polypropylene or paper, but Beryllium for its treble and midrange units. My 'O Level' Chemistry textbook reminds me that this is the lightest stable metal on the planet, and only the fourth heaviest element in existence.

The prospect of using Hydrogen or Helium to make your speaker cones is - shall we say - 'airy fairy', and I wouldn't want to sit too close to a Lithium tweeter unless it was sitting in a bath of oil - to prevent it spontaneously combusting like a Spinal Tap drummer! In short then, 'Be' is ultra light yet stable, and as such ideal for use in a transducer. Because of its

"they showcase the best in contemporary loudspeaker design, and make it work like few others..."

very nature, it is far better suited to the job of moving air than anything made from heavy old Magnesium or Aluminium. Well, Beryllium *would* be ideal, were it not for the fact that it's so expensive to produce safely - for consumer loudspeaker applications, the price certainly isn't right.

This explains why so few speakers have ever employed this material - with the standout exception being Yamaha's NS1000M which I use to this day. Sure, they have their weaknesses, but the speed, clarity and insight is like no other I've heard. The Yamaha's' strength comes not from using a Beryllium tweeter, but from mating one to a five inch Beryllium midrange dome so well. With this speaker, you have all the most audible frequencies handled by phase-coherent, identical sounding transducers, and the results are startling. Well, to this select group you can now add the Usher Be-10s - for they too run Beryllium tweeters and midrange units, although with the Be-10 Usher have chosen to invert the midrange dome to a cone profile. This, says the company, is the first ever such driver.

£10,500 buys you a very big (365x715x1215mm) box weighing no less than 92kg (including its base). The Be-10 is, like so many of my favourite loudspeakers, a big three way running a 1.25" Beryllium tweeter from 40kHz down to 3.46kHz, after which that 5" inverted Beryllium dome takes over. This goes down to 550Hz, when an 11" Eton woofer handles everything right down to 25Hz (claimed) with the help of bass reflex loading. One problem for the bass unit to contend with, with two of the world's fastest, lightest drivers pulsing away above it, is how to keep up. For this reason, Usher have chosen Kevlar - which is another light and stiff material (a patented para-aramid synthetic fibre) - famous for being used in bulletproof jackets, amongst other things, due to

it being five times stronger than steel on a weight-for-weight basis. The cabinet is a familiar profile for Usher, being rounded at the back (to reduce resonances) and angled backwards (to provide time-alignment). Needless to say it is massively braced and the standard of finish is - as you'd expect from high end Ushers - immaculate.

SOUND QUALITY

Costing over £10,000 I am afraid you cannot make excuses for a loudspeaker such as this - it's right up against the likes of B&W's 801D and thus playing with the big boys. With this in mind, I wasn't expecting to be able to be 'nice' to the Usher Be-10s. Of course, I knew that they had a great start in life with their state-of-the-art treble and mid units, but in my experience theoretical excellence rarely translates into practical perfection. Being the hardened old hack that I am, I was ready to find fault, but it turned out to be more difficult than I had first thought.

Within the opening notes of the first bar of a cleanly recorded piece of music, played through decent amplification, you can tell just how different these boxes are to almost every other. There is exceptional clarity from top to bottom, but it's not the usual sort of dry, sterile focus than so many so-called 'reference' loudspeakers serve up. Instead, this is natural and effortless. Rather than shining a thousand Watt bulb on the recording and clicking in the zoom lens, the Ushers provide a wide angle window on what's going on without



preoccupying themselves (or you) on individual detail points. Or so it seems, because actually, they also brilliantly resolve every detail of the song, but just don't draw attention to themselves as they do it. The result is a simple, natural, matter of fact sound unsullied by mediocre transducers.

This is impressive stuff, but the Ushers don't sound impressive - it's not like they're trying hard to push out everything at you. It's all there for sure, but surprisingly you can take it or leave it as you please - which is one area where they are conspicuously ahead of my reference Yamahas. The combination of enormous detail and delicacy allied to real ease is what defines these loudspeakers as truly great, and it's all down to the integration between all three drive units. Just having a trick tweeter isn't enough. It's the seamless combination of HF and midband units with very similar phase characteristics and tonal character (however unobtrusive this may be anyway) that makes for such an open, lucid and yet so subtle sound. Whilst other Usher speakers have had Beryllium tweeters, to me this almost creates more problems than it solves, because it's impossible to completely harmoniously marry them to a midrange unit that's not made of the same super-light material. The end result hasn't been bad, but still at times seems less than the sum of the parts. Here though, it is the opposite - the two Be drivers give seamless clarity that puts most electrostatics to shame, and then go on to marry up with that big Kevlar bass unit blissfully.

Kraftwerk's 'Tour De France Étape 1' is a case in point. This is a sparse recording with tremendous rhythmic subtlety and layer upon layer of detail. I can honestly say I've never heard Ralf Hutter's deadpan vocoded vocals as clearly as I have with the Be-10s - these speakers communicated the air around his voice with utter ease, remaining unflapped by that pounding bassline and cascading keyboards running very close to 0dB levels. Despite the breathtaking forensic analysis of the elements within the mix, this didn't distract one jot from the song's hypnotic rhythm and imposing physical weight, which the Ushers caught brilliantly. The result was an engrossing rendition of a track which I (and many other Kraftwerk fans, I suspect) feel gets better every time you listen to it. Even at very high levels, these speakers never veered towards harshness, which is normally the price you pay for such resolution - even on the opening four bars of

the following 'Tour De France Étape 2' with its highly modulated keyboard pads, which are forward enough to make projectiles out of lesser midrange drivers!

Likewise, cue up Saxon's '747: Strangers in the Night' and the Be-10s cut right through the mix, conveying Barnsley's finest with sparkling clarity and freshness that makes the music sound like it was



recorded last week, rather than three decades ago. It's great to hear an instant switch from one studio to another, the speakers telling me everything about the new recording yet never letting this distract - or detract - from the musical performance. The band's epic drum sound, cowering basslines and falsetto guitars are there in all their (rather camp) finery, along with the distinctive strains of Biff Byford's gruff vocals. I loved the way that, whereas with Kraftwerk the recording had been up close and personal, suddenly Saxon were hanging back, with some aspects of the mix dropping almost behind the rear wall, with everything in incredible focus all the same.

REM's 'Maps and Legends' showed a blissful mix of tonal accuracy, rhythmic alacrity and dizzying detailing. This is a fairly muddy sounding track, appropriately enough recorded during a trip to rainy London in winter 1985, and lacks the glossy sheen of their later (I would say) cruder pop-rock excursions. The Be-10s cut through the grunge like a hot knife

through butter, once again 'snapping' a completely different recorded acoustic into the listening room as soon as the laser hit the silver disc pits. Where there is usually a muddle of murky guitars doing a pale Byrds pastiche, now I could hear crisply played, deftly strummed, multitracked, layered Rickenbackers chiming "like bells in the night" (as Be Bop Deluxe's Bill Nelson once so nicely put it). Singer Michael Stipe's plaintive tones gained a degree of warmth and subtlety compared to the likes of B&W's 801D, those Beryllium midrange units apparently editorialising an awful lot less about its sound...

Jamiroquai's 'Return of The Space Cowboy' showcased the song's beautifully smooth and laid back electric piano work, the speakers giving it a tremendously tactile quality that's so often missed. This is a band that can sound very bland on record, but I've found them quite captivating live, and again the Ushers nailed it. The quality of this early nineties analogue recording showed the excellence of the Usher tweeters; they're blessed with uncanny clarity, delicacy and air - making your average aluminium affair sound like two dustbin lids being bashed together by a twelve year old with an ASBO. The great integration with the midrange unit meant the Be-10s had brilliant phase performance; backing vocals hung well back yet were solid in their location all the same, contrasting well with singer Jay Kay's imposing lead.

This track also has a big, deep, sumptuous bass guitar pushing it along - and even a bass solo half way through. I found the Be-10 to be very strong in this respect too - powerful, taut, firm and insistent yet never overbearing, the balance was beautifully judged. They also went very loud without showing any strain, giving something very close to a 'live PA' sound at high levels. Indeed, my only gripe - and it is minor - is that the Be-10s just lacked



that requisite pin-sharpness in the bass. Although I heard negligible box boom from the big cabinets in my small-to-medium sized listening room, it was obvious that these are reflex port-loaded loudspeakers, lacking as they do the instantaneous LED-like 'on-off' of my reference Yamahas (which are non-ported, infinite baffle designs). This very subtle time slurring in the bass (and in the Be-10 is it very subtle, I must add) is I am afraid, a fact of life for ported boxes in my experience. Realising that there are many who believe otherwise, I shall brace myself for the complaints, but having chosen to live with infinite baffle speakers all my life, I can sniff this out like milk past its sell by date in my morning coffee!

CONCLUSION

It is amazing how many high end speakers are so obviously flawed. Glorious flaws they may be; indeed some people even buy them because of these 'quirks'; but imperfections they remain. The thing about the Usher Be-10s is that - to my ears at least - they are mostly flawless. They are exceptionally open and expansive, whilst being uncoloured to a degree that makes your average electrostatic sound like a pair of disco speakers. After a protracted run-in and a thirty minute warm up every day they work brilliantly with all sorts of music, always drawing one's attention to the innate goodness of the recording rather than its faults. They're superb at capturing the essence of recording, as well as giving you chapter and verse about the fine detail. They're generally dizzyingly fast and dynamic, yet never need be used solely for these purposes - you can kick back with some late night classic jazz and relax without being assaulted.

Realistically, you need a serious system for the Usher Be-10s; the review system I used was the minimum you'd be countenancing. Think also about a medium to large room, not a small one - although they're better in

confined spaces than other 'big' speakers such as B&W 801s. Music choice? Well - the Ushers loved everything I tried, being seemingly one of the best all rounders in the business. Overall, as you might have guessed, I think these are one of the best pairs of loudspeakers I've heard - up there with the finest electrostatics and multi-ribbon designs around. They showcase the best in contemporary (and classic) loudspeaker design and, just as importantly, make it work like few others.

Many thanks to Infidelity (9 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DA, tel: +44(0)20 8943 3530) for their help in preparation of this article.



REFERENCE SYSTEM

Naim CD3 CD player
NuForce P9 preamplifier
NuForce Reference 9SE power amplifiers

MEASURED PERFORMANCE

Usher are strong on measurement and producing a loudspeaker that is accurate, rather than enhanced. So the measured frequency response of the Be-10 comes as no surprise: it stays close to the 0dB datum from 60Hz all the way up to 18kHz, an unusually wide frequency range as loudspeakers go, and one that stays almost studiously close to notional perfection (in one sense). There's no treble lift wherever the measuring microphone is placed so the Be-10 isn't tweaked for the showroom and will sound less bright than most rivals, which these days have emphasised treble. However, a steady state pink noise analysis did show that in a room, modal build up of bass energy causes the Be-10 to peak at 75Hz and deliver enormous energy down to 50Hz, below which the port (red trace) kicks in to extend output down to 20Hz, our analysis shows. Since port output measures +8dB above forward driver output at 40Hz it contributes strongly. The Dancer Be-10 excited our room's main mode at 24Hz strongly, so it will have earthquake bass in large rooms.

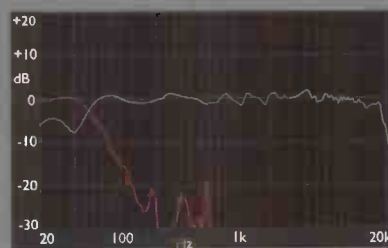
The 5in (127mm) inverted Beryllium dome midrange and 1in (25mm) Beryllium dome tweeter together contributed to an unusually clean 200mS decay spectrum, ranking as one of the best loudspeakers we have measured to date and approaching that of the Kingsound Prince II electrostatic. So expect very low colouration and superb levels of clarity.

Sensitivity measured 89dB, as claimed, and impedance worked out at 6.3 Ohms overall, identical to the D.C.R. of 6.3 Ohms. The port is tuned very low, to 24Hz, and the impedance curve shows it exerts wide damping,

correlating to its wideband output. Bass notes from 40Hz upward will play cleanly over a non-resonant region of operation and should sound firm and even as a result. Above 60Hz Be-10 load is 4 Ohms, and largely resistive, so it's a relatively easy load that should suit both valve and solid-state amplifiers, high sensitivity suggesting 20-60 Watts is all that will be needed in most circumstances.

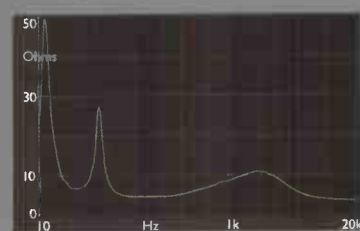
The Be-10 is classically well engineered, giving a superb measured performance in every area. It will need little power, match all amplifiers, is totally accurate, will have monumental bass and approach electrostatic levels of clarity and low colouration, measurement suggests. NK

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE



VERDICT

Brilliantly engineered loudspeakers with leading edge technology, honed to deliver breathtakingly clean, open and musical sound.

USHER BE-10 £10,500

HiAudio Distribution

+44 (0)845 052 52 59

www.hiaudio.co.uk

FOR

- seamless clarity across a wide frequency range
- arrestingly powerful bass
- exceptional tonal neutrality
- overall finesse

AGAINST

- fractionally slower bass
- require long run in & careful room and system matching

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suggest the Sirius as an
effective upgrade for
any system"*

HI-FI CHOICE



IsoTek Sirius featured with Supreme power cable

<p>WHAT HI-FI? ★★★★★</p> <p>Accessories IsoPlug, DeMag CD, etc...</p>	<p>EDITOR'S CHOICE HI-FI CHOICE</p> <p>Sirius</p>	<p>BEST BUY HI-FI CHOICE</p> <p>Solus</p>
<p>WHAT HI-FI? ★★★★★</p> <p>Gil Mini Sub & Vision</p>	<p>WHAT HI-FI? ★★★★★</p> <p>Orion & Gemini Two levels of high quality filters</p>	<p>BEST CATEGORY WINNER HI-FI CHOICE</p> <p>Sigmas</p>
<p>Nova</p>	<p>WHAT HI-FI? ★★★★★</p> <p>Product of the year 2005</p> <p>Titan</p>	<p>Mira Dedicated TV filter</p>

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Back To Black

Considering the Long Playing record's recent renaissance, Adam Smith auditions six of the best sub-£1,500 turntables...

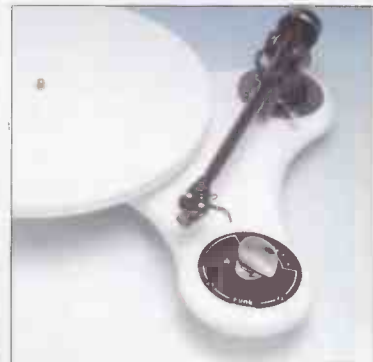
Whether you are gladdened, amused, indifferent or unaware, the fact is that vinyl is back with a vengeance. Indeed even we here at the magazine have been surprised by the way sales of both software and hardware, for playing this classic technology that we have campaigned so tirelessly to promote, have taken off in the past couple of years.

New turntables seem to be popping up everywhere, new vinyl releases are becoming ever more plentiful, and no longer just from the bands who thought it was 'trendy' to bring out an LP version of their latest album. Now, a great many new releases are getting a bite of the vinyl cherry, and in some cases, such as with Robert Plant and Alison Krauss's superb 'Raising Sand' album, go to a second pressing due to popular demand...

Speaking to a digital-loving acquaintance the other day, I was surprised to hear that he has invested in a turntable, and his reason for doing so is that he came to the conclusion that there is so much material that has still not been released on CD, and is equally unlikely to be dragged from the digital vaults onto the likes of iTunes, that he felt investing in an LP spinner would give him the best access to the widest range of music.

There's never been a better time in recent memory to buy a turntable, as there hasn't been so much choice of models since analogue's heyday back in the nineteen seventies. As we've been pointing out in the past eighteen months or so, there seem to be more new turntable releases from manufacturers than there are CD players, and the latest GfK sales figures bear this out, showing a nine percent rise in the value of the vinyl hardware market last year...

With this in mind, we felt it was time to take a fresh look at one of the most hotly contested areas of the market - the sub £1,500 mark. New models are crowding into this area all the time, each with their own particular selling points and musical direction, and we have lined up models from Scheu Analog, Thorens, Pro-Ject, The Funk Firm, Avid and Acoustic Solid in order to gauge what's available. Finally - and this is something we are often asked by readers - just how much of an improvement will shelling out this sort of cash bring you, over an excellent budget staple such as the classic and recently updated Rega P3-24 at around one third of the price? Read on to find out...



REFERENCE SYSTEM

Goldring 2500 cartridge
Whest Two phono stage
Naim SuperNait amplifier
Ferrograph S1 loudspeakers

THE CONTENDERS

Scheu Analog Cello/RB250	£1,000	p16
Thorens TD700	£1,099	p17
Pro-Ject 6 PerspeX	£1,250	p18
The Funk Firm Vector II/Funk RB250	£1,310	p19
Avid Diva II/Jelco SA250-ST	£1,400	p20
Acoustic Solid Classic Wood/RB300	£1,500	p21



SCHEU ANALOG CELLO/RB250 £1,000

This is the only Scheu Analog deck to have a conventional 'square plinth' configuration, as opposed to the more swooping curves of the dearer Diamond, Premier and Das Laufwerke models. That is not to say that any corners have been cut, as the build quality is magnificent. The Cello is driven by nylon cord from the dinky little motor located in the pod of the front left-hand foot. This and the other front foot have rubber bases, and the third support at the rear is a height-variable metal cone, for which Scheu thoughtfully supply a 'spike-saver' to protect your turntable stand. The motor takes its power from a 'wall-wart' power supply and is switchable for 33 and 45rpm, with a good range of adjustment available, courtesy of twin potentiometers either side of the switch.

As part of the package, the Cello comes complete with a pre-fitted Rega RB251 arm and Ortofon OM10 cartridge for virtually plug and play operation. In addition, the deck can be purchased without arm, and bases can be supplied for the arm of your choice. As standard, the acrylic base is transparent and the 2.5kg acrylic platter frosted, but a matching transparent platter finish is offered, as is a black base. Finally, there is also a premier version available, with blue tinted base, the transparent platter and pre-fitted Jelco SA-250 arm and Denon DL103 cartridge. The Cello is impressively compact, measuring just 425 x 330mm

SOUND QUALITY

Swapping to the Scheu from the Rega P3-24 used as a benchmark brought about some notable changes. Most obvious was the way in which the entire performance seemed to step forward from the plane of the loudspeakers and project into the room. Atmospheric took a notable leap forward and the individual players in the band or orchestra shuffled their chairs and spread out more, pushing out past the physical limits of the loudspeakers better.

At the low end, the Scheu removed the upper bass bloom that I noted on the Rega, without sacrificing any of the lower bass impact and solidity; in fact the Cello seemed

even more sure-footed. Bass guitar notes seemed more vividly etched and the kick drums from the Eagles 'Long Road out of Eden' had more impact on initial strike. Equally, at the top end, the Scheu seemed to just fill in the slightly softened edges of transients to ensure that cymbal strikes just lifted themselves up above the rest of the music.

Across the midband, the Cello was more of a mixed bag, as things became a little jumbled at times when orchestras really struck up. On the odd occasion as a result, the Cello seemed a little overwhelmed and almost uncomfortable. On the whole though, it was a well balanced and enjoyably detailed performer.

MEASURED PERFORMANCE

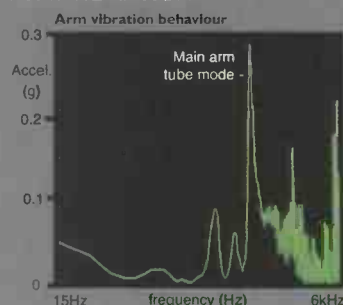
The Cello comes fitted with a Rega RB250 arm, into which is bolted an Ortofon OM10 cartridge. We measured the arm's main vibrational modes with this and a Goldring 1012GX, getting similar results. There are two peaks, one at 650Hz, the other at double this, or 1300Hz. Shown is the OM10 result where the lower frequency flexural mode is well damped, but the higher one reaches full scale (0.3g). With the Goldring the peaks were more closer in amplitude at around 0.15g each. This is a fair performance, showing the Rega is stiff, if still prone to ring a little. The headshell is as lively as most the spectrum above 1kHz suggests.

The turntable is flutter-free and both low rate drift and resultant wow below 2Hz well suppressed, unweighted wow measuring a fair 0.15%. IEC weighted wow came out at 0.078% a low value. Speed was adjusted to be correct at 3150Hz.

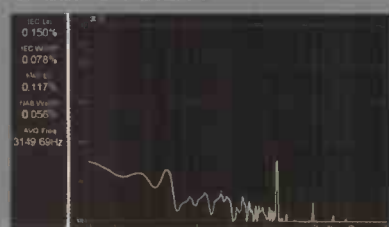
Both turntable and arm are nicely

engineered, giving decent results, with nothing untoward. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

Neat design that shows just how well simple but careful engineering can work.

SCHEU ANALOG CELLO £1,000
Scheu Analog
+49 212 380 858 30
www.scheu-analog.com

FOR

- bass speed and weight
- crisp, atmospheric treble
- styling and build

AGAINST

- muddled midband



THORENS TD700 £1,099

You don't have to be Sherlock Holmes to work out that the Thorens shares a common thread of DNA with another deck in this test. Yes, that's right, the Thorens hails from a certain turntable factory in the Czech Republic, and is none the worse for that...

Clearly, Pro-ject have manufactured the deck to Thorens specifications and this means a unique arm design given the nomenclature 'Thorens TP42' and featuring a magnetic anti-skating system, a traditional belt drive setup and the speed change knob that will be familiar to anyone who has owned a Thorens deck from the late nineteen seventies onwards. The belt drives a sub-platter on which sits the 2.4kg acrylic main platter and the deck is fully manual.

The TD700 sports three acoustic damping feet and the base is immaculately finished in a choice of black, silver, dark blue and red finishes. The dark blue of the review sample is very smart but in an understated way and, once again, the deck will not intrude unduly onto your shelf space, measuring 465x350mm and tipping the scales at 10kg. Finally, as per the Scheu, the TD700 is supplied with a cartridge fitted to give a ready-to-play deck, but this time it is our old budget friend, the Audio Technica AT95E.

SOUND QUALITY

The TD700 is a dynamic and fulsome performer, with plenty of pizzazz to ensure that you don't miss a thing. Naturally, it is more than happy to hunker down and whisper softly when the occasion demands but give it a bit of rhythm and it's off like an excited puppy! The Thorens seemed to take the space and atmosphere offered up by the Scheu Analog Cello and just build on it that little bit more. It has a lovely sense of depth and scale which, although not pulling performers out into the room like the Cello, nevertheless gives a fulsome atmosphere that pushes back

behind the loudspeakers in a slightly different manner.

The top end was fine and crisp, and the TD700 was nicely fleet of foot across the midband, remaining composed and well ordered when things grew pacier, with just the occasional sense that it was starting to find things a little tricky to follow as the action ramped up in more densely layered recordings. At the low end, basslines were confident and tuneful but not especially well separated from the rest of the mix, while kick drums were definitely a little on the soft side, lacking their customary impact.

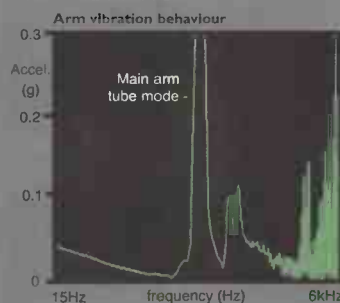
MEASURED PERFORMANCE

The Thorens arm has a very strong flexural mode at 500Hz that goes off our scale (0.3g full scale), hitting 0.6g - a very high value. The frequency of resonance is high so arm stiffness is good, but damping appears minimal and a symmetric structure makes the mode very strong. This will affect sound quality, either as colouration or a reduction of image stability, especially at lower frequencies. Cartridge weight range was limited, able to balance out little more than a light 6.3gm Goldring 1012GX test cartridge. This makes heavier types, often MCs, incompatible.

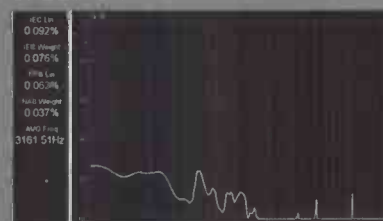
The turntable was speed stable, our spectrum showing low rate speed drift, below 1Hz was low. This results in a low 0.092% unweighted wow and flutter figure. Lack of higher rate wow and flutter variations also gives a low IEC weighted value of 0.076%, another good result. Speed accuracy was also fine at just 0.35% fast, an inconsequential amount.

The turntable is good but the arm is unimpressive by today's standards. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

Another simple plug and play solution that turns in a big, friendly performance.

THORENS TD700 £1,099

UKD

+44(0)1753 652669

www.ukd.co.uk

FOR

- fine stage depth
- keen musicality
- ease of setup

AGAINST

- lacks bass detail and impact



PRO-JECT 6 PERSPEX £1,250

Asuspended design with a two piece plinth, the lower half in clear Perspex sits on three sorbothane-damped aluminium feet and, above this, the main black subchassis sits on three magnetic supports. The motor sits in a little cutout in the main chassis. The 2kg platter spins on a ceramic ball bearing and a screw-down clamp couples the record effectively to its top surface. The arm is Pro-Ject's 9CC Evolution type, featuring a one-piece conical carbon fibre arm tube and headshell, plus one of the biggest bearing yokes you are likely to see this side of a Kuzma. The counterweight is sorbothane damped and the stub on which it locates is axially lower than the arm tube itself, to reduce dynamic wow when tracking warped records. Bias is applied by a thread and weight system, with the hook and weight tucked neatly away behind the bearing housing. One concern here was that the knot tied in the bias wire was barely any bigger than the rod on which it locates and I had great difficulty in persuading it to move from one notch to the next when setting up! Actually, this wasn't my only concern – my second being the brightest blue power illumination LED on the motor pod that I have ever seen! It was most impressive, but I was slightly worried that which ever lighthouse Pro-Ject pinched it from might need it back at some point...

SOUND QUALITY

The 6 PerspeX improved on the TD700 in a couple of key areas. Starting with the similarities however, the Pro-Ject certainly came across with a similarly jazzy and enthusiastic nature and really seemed to kick into its stride as the tempo increased. Offering an equally spacious rendition of performances, I was aware that everything seemed to be more firmly located within the soundstage through the Pro-Ject. With the TD700 it was certainly not difficult to work out where the players were sat in the studio, but the 6 PerspeX made it that bit less of a chore to figure out. Equally, whereas the Thorens

could occasionally give a slight sense of struggle when asked to punch out 'busy' material, the Pro-Ject seemed more able to take this in its stride without becoming flustered. At the top end, things were well etched and finely detailed, but the Pro-Ject gave away a little to the TD700 in terms of outright crispness.

The Pro-Ject proved more able to dig bass details from the music. Double bass string plucks had more body to them, and bass guitar notes were better separated, but I was still left with a feeling that the deck ultimately was a little soft at the low end, missing out on the sheer impact that it should have.

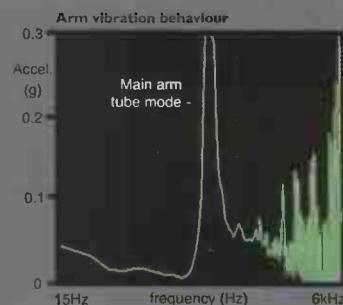
MEASURED PERFORMANCE

The Pro-ject 9cc carbon fibre tonearm has a strong main arm tube mode at a high 600Hz, our analysis shows. This means the arm is stiff and light, but also mechanically reactive and relatively undamped. Further up the frequency range where accelerations increase, the headshell exhibits clusters of modes suggesting it is also lively. The Project arm will likely have a characteristic sound and may not separate instruments and sound stage especially well. The standard counterweight matches cartridges weighing 8-10gms, Pro-ject say, and an alternative counterweight is needed for 5-7gm cartridges. As most cartridges weigh 5-10gms neither has wide compatibility.

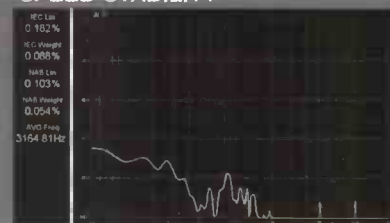
The turntable ran 0.44% fast, a negligibly small amount, and speed stability was good, if unexceptional at 0.182% IEC unweighted. Total weighted wow and flutter measured 0.088%, with high rate flutter above 10Hz; most wow was low rate as usual. This turntable

won't have the rock steadiness of some but it is decent. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

Smooth, detailed turntable that turns in a suitably musical sound.

**PRO-JECT 6
 PERPSEX** £1,250
 Henley Designs
 +44(0)1235 511166
 www.henleydesigns.co.uk

FOR

- fine midband clarity
- good low end detail
- precise soundstaging
- cleverly designed

AGAINST

- bass a little limp

THE FUNK FIRM VECTOR II/FUNK RB250 £1,310

An evolution of the winner of our 'turntable of the year 2006' award, a few tweaks see the new Vector II back. The signature part of this intriguing deck is Arthur Khoubesserian's 'Vector' drive system, which positions three pulleys around the periphery of the subplatter with the belt looping around all three. Of these, two are passive and one is the motor, with the claimed result that one obtains the equality of driving force of a three motor setup, and the concomitant increase in stability and low end detail, but without the tripling in mechanical noise that three motors would give.

The Funk is available on its own for £860, but you can have it with a Funked Rega RB250 for the total price of £1,310 - the arm gaining a better earth lead properly connected into a dedicated earthing point and a well made VTA collar. The deck is topped off with an Achroplat platter, sat on a simple subplatter and spinning on a sapphire bearing. The Vector II's drive motor is a DC design and the deck sits on three Sorbothane feet. It's available in black, purple and white - all very eye catching!

SOUND QUALITY

The detail that the Vector II pulls out of the grooves is astounding at the price, and it seemingly kicked aside my loudspeakers as if they weren't there, to plaster the end of my listening room in a huge wall of sound. If one

tries the Achroplat on a Rega deck, for example, or listens to a Vector drive system on an LPI2, the improvements are clear to hear, but hearing them both together on the one unit is an ear-opening experience.

Across the top end, everything positively sparkled, with Don Henley's cymbals on the Eagles 'Long Road out of Eden' shimmering deliciously off into the distance. Don's vocals also stood nicely clear of the backing instruments and came through with real emotion. Equally, orchestral works were beautifully ordered in instrumental arrangement terms but without ending up becoming surgically

dissected and lifeless as a result. The Vector II told me exactly what I needed to know, and no more.

At the low end, I finally heard some real detail coming through the loudspeakers. Bass guitar from Simply Red's 'Sad Old Red' took on real form through the Funk, and the whisper as bassist Tony Bowers' hand slid up and down the fretboard during the intro was delightful. Once again however, a little more sheer welly wouldn't have gone amiss on occasion, but generally the Vector II is so nimble, detailed and pacy at the low end, that I really wasn't bothered about the occasional lack of that last bottom octave.

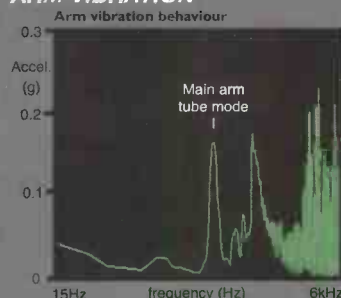
MEASURED PERFORMANCE

The Funk is fitted with a Rega RB250 arm and it possessed the same signature as other RB250s we have measured, including that fitted to the Sheu Analog Cello tested in this group. There are main modal peaks at 650Hz and around 1,300Hz, relatively high frequencies, showing the arm is stiff. They are of reasonable level and narrowness, so there isn't so much energy (area beneath the curve) being lost in these modes. To the right of them lie a forest of small peaks that are related to headshell behaviour. Above 4kHz they get quite strong, as is common with the Rega arm. A good result then, and very Rega-ish!

The lightweight platter had less flywheel effect than the heavier acrylic and glass platters of the Thorens and Rega in particular, so there was a little more weighted wow, but the Funk still turned in decent figures of 0.210% unweighted wow and 0.136% weighted wow. Unfortunately, as delivered speed

was 5% fast but is adjustable. This is a fiddly process because the adjusters are concealed. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

Innovative engineering allied to serious attention to detail make for an exceptional performer at the price.

FUNK FIRM VECTOR II/FUNK RB250 £1,310

The Funk Firm
 ☎ +44(0)1273 585042
 www.thefunkfirm.co.uk

FOR

- stunning spatiality
- superb low end detail
- taut rhythmicality
- crisp treble

AGAINST

- slight lack of bass impact



AVID DIVA II/JELCO SA-250ST £1,300

This is the latest incarnation of Avid's entry-level turntable, boasting a subplatter that spins on the same sapphire bearing as the more expensive models, and the main chassis is still a one-piece casting, carefully designed to minimise the transmission of vibration. The Avid's motor is a standalone device, powered by an external power supply and giving two speeds via a stepped pulley. As the motor is an AC synchronous type, there is no speed adjustment as such, but fine tuning may be achieved by physically moving the motor closer to, or further away from, the subplatter. On top of the subplatter sits the main platter – an MDF item topped with a fixed cork-based mat – and this is again carefully designed so that, in partnership with the screw-down record clamp, any vibrations can be safely channelled away from the stylus as it tracks the record.

The Diva II was fitted with the optional Jelco SA-250ST arm. This is a straight arm with integral fixed headshell and is mounted onto the Diva, which sports an SME arm mount, by a very nicely machined adaptor plate. I don't know if Avid are planning to offer this plate as a standalone accessory, but it's certainly a handy gadget to have. As to build quality of the deck and arm, I think it is probably sufficient to say they are virtually of SME standard – no more need be said!

SOUND QUALITY

This is a turntable that has no time for loudspeaker or room boundaries, and simply elbows them aside as if they are not there. Some decks pull the soundstage out into the room and some push it off into the distance, but the Avid seems to have perfected the trick of doing both. It really is a room-filler and is quite staggeringly detailed across the midband and treble.

What this means is the Diva II simply picks you up and plonks you into the concert hall or studio, and lets you hear every little nuance and inflection of what is going on. Cathy Dennis's vocals from the acapella version of 'Too Many Walls' had

the hairs on the back of my neck standing up, they were so vivid and lifelike, and the guitar being played at the far left of the soundstage in the Eagles 'Long Road Out of Eden' seemed to be coming from my bathroom!

I was also delighted that I had finally found a low end companion that wasn't making me wish for the sheer power of my Garrard 301. The Avid's low end is the best you'll find at this price point, being confident, rhythmical and yet also deep and clean when required. This means that it never leaves you feeling that perhaps you are missing out on the end of the spectrum that is the foundation of the music.

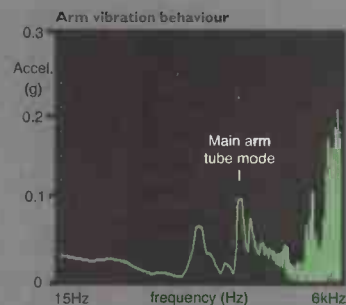
MEASURED PERFORMANCE

The Diva II's Jelco SA-250ST arm looks conventional enough but performs better than most. Its main arm tube mode is very well suppressed, suggesting it will possess a wide stereo stage at lower frequencies, plus good bass dynamics. The headshell is well damped too and resonance-free compared to most, our accelerometer measurement of vibration shows. So the Jelco performs a lot better than looks suggest!

The turntable is flutter-free, but a low rate wow component below 2Hz affects the wow and flutter figure a little, leading to an unweighted value of 0.36% and a weighted value of 0.094%, both good but unexceptional. Speed was accurate, a negligible +0.2% error being recorded.

This combo measured well and will certainly sound good in use. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

Stylish and superbly built, the translucent sounding Diva turns in a performance that belies its price tag.

AVID DIVA II/JELCO SA-250ST £1,300

Avid Hi-Fi
+44(0)1480 457300
www.avidhifi.co.uk

FOR

- superb bass
- excellent imagery
- mid and treble detail
- build quality

AGAINST

- nothing at the price



ACOUSTIC SOLID CLASSIC WOOD/RB300 £1,500

A pretty disc spinner, based around a solid wood base available in Cherry or Black and standing on three surprisingly tall feet, all adjustable for height.

The platter is a 35mm thick solid lump of aluminium, polished to perfection and topped with a quite thick and rigid felt mat. The left rear corner of the plinth is 'chopped off' and this is where the motor sits, driving the platter's periphery via a surprisingly stretchy clear rubber belt. The motor has a stepped pulley but the belt can be left on the 45rpm setting as the new control unit has speed switching via pushbuttons as well as variable speed.

The deck on its own is £1,350 and comes with SME and Rega armboards, although others are available on request. However, for £1,500 Hi Audio offer a competitive package in the form of deck, Rega arm and Ortofon 520 cartridge. The deck is physically quite large and needs a decent area in which to sit, but is rather stylish all the same.

SOUND QUALITY

Having found the bass I'd been looking for with the Avid, I wasn't expecting the Acoustic Solid to elbow the Diva II aside. That sturdy drive system and heavy platter imbue the Classic Wood with a seriously impressive low end and mean that it gives little away to most decks in terms of sheer bass power and impact. Even more

encouraging was the fact that this was not all boom and thud, the Acoustic Solid being more than happy to take it slower and pick out fine details when required. It didn't quite have the Diva II's mastery of upper bass subtlety, but came close.

One of our original complaints of the older Classic Wood was a rather overblown midrange lacking in finesse. I am pleased to report that the new elements in the drive system seem to have cured this completely, as the Acoustic Solid is now as emotive and well controlled as you could hope for across the mid and lower treble. It captures

instruments with finesse and reveals the smooth, rich tones of female vocalists without overblowing them at all. It still doesn't quite hang images back in the soundstage as well as other decks here but it is certainly not curtailed in imagery terms, and is more than capable of spreading out performances nicely. Across the top end, treble was crisp with good levels of detail and finesse. Once again, cymbals had a pleasingly metallic nature without ending up overblown.

All in all, a deck that is equally capable of hammering its message home, or sitting back and taking it easy, as required.

MEASURED PERFORMANCE

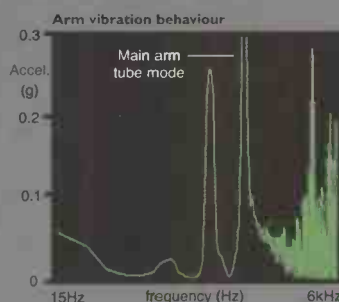
The heavy platter is driven by a compliant belt that stretches to allow wide latitude in motor positioning, speed slowing slightly as the motor is moved further away. In the end an intermediate position where the belt was neither very slack nor very tight gave the best results our speed stability measurements showed, motor-to-platter spindle centre distance measuring 225mm. The platter then held speed well, with little drift, a 3,150Hz tone measuring 3,150.36Hz after adjustment. Unweighted wow was low at around 0.126% and weighted wow a very respectable 0.058%, with flutter above 20Hz minimal. The heavy platter and soft, complaint belt work well together and should give stable sound.

The Rega RB300 arm gave its usual twin peak arm tube vibrational signatures, as per other decks.

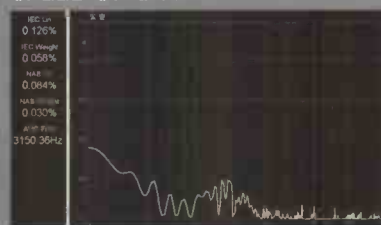
The Acoustic Solid Classic Wood works well in practice, as does the RB300, although the RB301 is a

significant improvement on it. NK

ARM VIBRATION



SPEED STABILITY



VERDICT

The latest tweaks turn a good turntable into a great one; the Classic Wood has now definitely moved up a gear in performance terms.

ACOUSTIC SOLID CLASSIC WOOD/RB300 £1,500

Hi Audio
 ☎ +44(0)8450 525259
www.hiaudio.co.uk

FOR

- superb bass weight
- fine timing and pace
- crisp, detailed top end
- minimal setup required

AGAINST

- imagery a little constrained



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The aim of this test was to take a known starting point, in the form of a well regarded £400 turntable, and to see what improvements could be obtained by increasing the budget spent to beyond £1,000, and just how those improvements manifested themselves. Ultimately it proved interesting for me, as I personally felt that all the dearer contenders improved on the Rega P3-24 but, by offering such different characteristics to it, there is the slim possibility that not all may see it this way. The Rega is a very good turntable and some might consider the changes gained to be not worth the extra outlay. After all, that £600 difference can buy an awful lot of vinyl!

First to consider is the Scheu Analog Cello, closest in price to the Rega but still a sizeable step ahead. Frankly, as per the dearer Diamond, one of my personal favourite turntables, I can only marvel at the sheer amount of good design and superb manufacturing that Scheu Analog have managed to fit in for the price. The fit, finish and detailing of the Cello would not look out of place on a deck double the price and it has that hewn-from-solid feel that suggests it will keep on spinning silently and reliably forever.

In sonic terms it leaps ahead of the Rega for me by the way in which it pulls music out of the loudspeakers. The P3-24 sounds rather two dimensional by comparison, and its full low end starts to sound a little loose when compared to the control and firmness offered by the Scheu. Ultimately, it gives a little away to the Rega across the midband by occasionally sounding slightly jumbled, and I wonder if a better arm might help here, and I'd be keen to try out that blue version with the Jelco arm! All in all though, this is a fine turntable and good value for money.

Heading a little further eastward in Europe, we find the contenders from Litovel, namely the Pro-Ject and Thorens decks. Unsurprisingly, these are both quite similar in character, but have certain elements of their design that means they do have some subtle differences. Considering the Thorens first, this is a well balanced deck with fine levels of enthusiasm and gusto. It is never flustered and always an enjoyably enthusiastic performer, but without falling apart when asked to play subtly and quietly. Ultimately its rather vibrationally 'lively' arm seems to limit bass performance but, considering its overall performance, plus simplicity of setup and use, and you have another

turntable that is definitely worth shortlisting.

Spending an extra £150 on its stablemate, the Pro-Ject 6 PerspeX, would therefore seem questionable but personally I think the extra outlay is worth it. The Pro-Ject just adds that extra sense of solidity to the soundstage arrangements that it sets up and seems better able to outline the leading edges of transients to result in a finer level of detail. The Thorens is certainly no slouch in this area but the Pro-Ject just finely etches everything a bit better and adds in a decent level of bass detail that the TD700 cannot quite match. Interestingly both decks offer a fulsome sense of low end weight, but both lag behind the best in terms of precision and impact

"the Avid is poised, sophisticated and blessed of the sort of scale, grandeur and authority that usually commands a much higher price tag..."

in this area, although the Pro-Ject's carbon fibre arm seems slightly better at retrieving detail. Ultimately however, both are satisfying musical companions and again leave the Rega behind in a number of key areas.

However, if you want a musical companion that is a little more than 'satisfying' then you'd be best off taking a listen to our final three contenders. The Funk Firm Vector II for example, is a revelation – it comes in an almost absurdly small box and can easily be supported by one hand. To dismiss it as a lightweight, in either sonic or stature terms however, would be a grave mistake, as this is one seriously capable vinyl spinner. I still feel that the light platter and simple drive system lose a little to the very best in terms of sheer grunt, but the sound offered by the Vector II is so precise, detailed, spacious and blessed of such precise timing, that this really doesn't seem to matter. It's a great little turntable and, for me, leaves the Rega eating its dust.

If however, grunt is what you want, then look no further than the Acoustic Solid. You could fit about three Funk Firm Vector IIs into the box it comes in, and it really is a case of Solid by name and solid by



nature. This is a deck that majors on impact, punch and drive; I remember listening to it and being impressed by this aspect of its performance first time round, but the updated motor controller really has given it

a more purposeful sense of control and fluidity across the upper bass and midband, making it more of a complete whole as a vinyl spinner. Although different characters, either this or the Funk could easily have walked off with top spot.

The trouble is, for these two decks at least, the Avid Diva II wasn't having any of it. This is my second encounter with the Avid Diva II and it again astounded me by simply doing such a passable impression of its bigger brothers, and at a markedly lower price! The deck is poised, sophisticated and blessed of the sort of scale, grandeur and authority that usually commands a much higher price tag. The Funk Vector II may well have pushed my loudspeakers out of the way to fill my room with sound, but the Diva seemed to push my entire listening room aside, judging by the way in which I found myself suddenly enveloped in sonic bliss. As far as I am concerned, the Diva II leads the field at its price point, and is more than capable enough to worry decks bearing even bigger price tags. Our budget reference Rega P3-24 is indeed a modern classic, but if there is any justice, I feel that the Avid Diva II should be regarded in the same way in twenty years time.

Definition



Definition is an outstanding new range of audiophile loudspeakers from Tannoy. Designed to get the very best from stereo music in the home, Definition distills and refines Tannoy's eight decades of loudspeaker expertise into a design of unrivalled performance value and stunning aesthetics.

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BLACK KNIGHT F8 POWERCORD £69.99/M

The latest addition to the I.M.P. Audio range of mains power cables, all Black Knight Powercords are fitted where appropriate with in-line suppressors to combat electrical spikes, and treated with Caig Deoxit DN5 deoxidising contact enhancer for cable and connectors. The cables are also subjected to pre-burning-in

on the Audiodharma Pro2.5 Cable Cooker, so no 'running in' is needed. This power cable is designed for equipment that requires a 'Figure of 8' or IEC-320 type C7 2-pin mains connector, the two conductors being made from 2.5 stranded 50x0.25 ultra pure oxygen-free copper, insulated with a special low smoke zero halogen (LSZH) polymer compound. These two conductors are twisted together (1 twist per 25mm) and bound together with 2 layers of microscopic PTFE tape. This bundle is covered with aluminium foil tape and a tinned copper braid, which is earthed to the mains plug to provide good RFI/EMI rejection. At the component end of the powercord is a high quality 'F8' plug and a similarly decent UK mains plug terminates the other end. The pins on the mains plug and the internal 10 amp fuse have been highly polished.

Unusually at this price, the power cord plugs and fuses have all been subjected to a deep cryogenic

treatment in addition to the DN5 treatment. The fuse also gets extra treatment with Caig Deoxit Gold GN5 for plated metal surfaces to improve conductivity. Clearly then, this cable has been the recipient of much attention to detail, and this is borne out by subjective listening. There's a perceptible reduction in background noise, including the spikes generated by refrigerators and other electrical equipment, compared to standard bundled power leads. This lowering of the noise floor made for a clearer and cleaner sound, and there was also a noticeable improvement in overall refinement across a wide range of music, plus a discernible ease in the way music was reproduced when compared to the standard lead. As such it represents very good value for affording a considerable sonic improvement for a really small sum of money. NR

[Contact: +44(0)1525 376066,
www.impaudio.co.uk]

soundbites

SONIC FREEDOM OFFSPRING SPIKES £74 FOR 3

Sonic Freedom's newest spike system, the Offsprings, are beautifully made isolation mounts crafted from medical grade stainless steel and are nicely presented in a quality box. These spikes are placed under any audio component or loudspeaker in either a tripod formation or a four-point setup. The spikes are claimed to improve the sound by reducing the unwanted frequencies that may be present in the hi-fi stand or support unit and also by extracting the noise generated by transformers and motors within the hi-fi components themselves. They are not simply equipment spike anchors which are usually designed to work pointing downwards to the support unit. The spikes point upwards on to the equipment and the large stainless steel bases sit on the hi-fi stand, and clearly have a part to play in damping out unwanted vibrations.

The effects that specialised supports can have are often very subtle. However, when these were placed underneath my turntable, the soundstage noticeably opened

up giving more space around the individual instruments and vocals. Transient response was also subjectively improved as cymbals had better attack, but there was no added harshness to string section of an orchestra. What I found more surprising was that trying them with my CD player yielded similar improvements – in fact, they were just as dramatic as with the turntable. Bass response was cleaned up by the Offsprings and the noise floor was significantly lower, giving a beautiful flowing clarity and crispness to performances. Removing the Offsprings gave the impression that I had smeared a thin layer of mud on my CD!

I would generally suggest the tripod configuration if possible, as this avoids the problem of rocking around the fourth point. Trying to get four supports all touching is like sequentially sawing bits off chair legs to stop it rocking. However, having said that, it is not always practical and I found that with my CD player, which has an uneven weight distribution due to large internal transformers, the four supports

improved overall equipment stability. I found the improvements I heard with the Offsprings were very similar to those I heard with the main 'Spikes', but the Offsprings are lower profile and a bit harder to setup with some equipment as they are not height-adjustable, being a one-piece construction. At about a third of the price of the 'Spikes', these affordable Offsprings bring the very significant improvements to within the pockets of most audiophiles and are well worth the money. NR

[Contact: +44(0)845 017 6208,
www.sonicfreedom.co.uk]





1 UP - Manship

Electrocompaniet's latest EMC 1 UP CD player is well worth switching on, says David Price...

And so it is that we reach the twilight years of the original 'Digital Audio Disc', and just as vinyl leapt ahead in sonic ability as hi-fi's grim reaper appeared for it, so we see a flurry of new developments arriving to hoist the venerable digital Frisbee up to another level now. Despite being a professional Compact Disc naysayer for the past twenty years - and for a long period of that seemingly in a gang of one - I have to concede that things aren't, ermm, quite as bad as they were soundwise. Indeed, if you're prepared to spend a fair sum, then you can get ye olde 16bit to really perform, as Electrocompaniet's latest EMC 1 UP shows...

It's not just me who's cottoned on to this, by the look of it. A quick shuftie at last year's Gfk figures show that while the size of CD spinner market is contracting, its value is holding surprisingly well. This means that we're all buying fewer CD players, but the ones we are buying are quite a bit more expensive than before. So, in a nutshell, the 'entry level' CD market is dead or at least moribund, and the only folks who want a curious machine that plays arcane physical media - which is the technological equivalent of a brick sized eighties mobile phone or the Sega Megadrive - are the hardcore enthusiasts who have a large collection of discs they want to enjoy for the foreseeable future. Fascinating,

as this is just where vinyl was when CD delivered it that near fatal blow in the late eighties!

Products like Electrocompaniet's EMC 1 UP are not therefore bought as casual purchases, but by people who know what they want and why they want it. They're discerning, and want all the latest technological tricks and the best engineering. This machine ticks all those boxes - surprisingly perhaps at a price a little lower than its some other natural competitors. The princely sum of £3,450 buys you a large (483x440x115mm) metal box - formed from crackle black finish pressed steel (think 1968 MGB dashboard), fronted by a thick slab of Perspex. Surprisingly, the casework



is quite resonant; rap it with your knuckles and it rings a little more than perhaps it should - especially compared to a price rival like, say, Naim's CDX2. Still, it feels, bigger, heavier (it is a portly 20kg) and more chunky than the Naim, all the same.

Sitting amidships is the latest and most expensive Philips CD Pro mechanism, top loading as has suddenly become the fashion these days, and complete with small magnetic puck. This is very carefully mounted to the main chassis with a proprietary mechanical filter which Electrocompaniet say has been tuned by extensive listening tests - it's designed to remove internal and external vibration components from entering the laser pick-up assembly, and quite right too as this has a highly deleterious effect on sound.

Having addressed the key mechanical design issues, the EMC I UP goes on to use a good deal of clever electronics, including the company's latest fully balanced symmetrical circuit design (complete with rear panel XLR outs to complement its standard RCA phono line outs) powered by four separate power supplies using Electrocompaniet's FTT (Floating Transformer Technology). These aspirate the digital unit, the display, the drive mechanism and the

analogue unit respectively. Finally, a 24bit 192kHz upsampling DAC is used to reduce the noise floor by 10dB, the company claims.

The EMC I UP isn't an unattractive bit of kit by any means, but it's certainly a little 'industrial' in its finish. For example, it has a good number of exposed allen bolt heads on the top plate which, were he found responsible, would doubtless cause a Japanese production engineer to commit *seppuku*. Closer to home, rival products from Linn and Naim are finished (on the outside at least) to a higher standard. The bad news continues with the remote control,

"its sound is as clean as a Norwegian river, and no less bracing..."

which is an embarrassment for a machine of this price.

Getting the EMC I UP going isn't as easy as some - it has three wing nuts underneath securing the transport which must be removed, as well as a disc cover lock which requires the removal of two allen bolts from a plate with a supplied allen key. Once again, getting a Naim CDX2 going is an altogether more civilised process.

Finally, an optional Spider Clamp

is available to replace the stock magnetic puck. It effectively centres the CD on the spindle even more accurately than the latter, and holds it not only from the centre but from the periphery. It's available in black, blue and silver.

SOUND QUALITY

Having given the EMC I UP a good run in, I soon came to the conclusion that it's a sin not to use the balanced outputs (if your amplifier is thus equipped), and the Spider Clamp also helped in the sound quality stakes, so that's how the Electrocompaniet was used - sitting on a Quadraspire rack

made a further pleasant step forward.

Kicking off with 4hero's 'Look Inside', and the I UP instantly impressed, showing a distinctive family sound with the massive NEMO power amplifier we reviewed a few months back. Its sound is as clean as a Norwegian river and no less bracing, with a very large amount of detail and a bold, epic presentation. But behind those big bass lines, expansive vocals images and biting hi-hat cymbals lies a certain civility and

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grace too - think of an iron fist in a velvet glove. I was particularly struck by the opening bars, with the skipping, looped electronic percussion. Many mid-price CD players trip over their toes with this, trying to be too clever by attempting to accurately excavate all that detail along with this band's trademark sinewy rhythms. But the Electrocompaniet held everything together brilliantly, showing a dextrous touch that marks it out as a serious CD player.

Tonally, the 1 UP is fresh as ocean spray; there's not a hint of tailored response curves designed to imbue an artificial warmth, yet nor is there any hardness present either. It has an upfront and immediate sound, yet it never becomes forward even with the icy vocals of Kate Bush on 'This Woman's Work'. This CD player isn't dull by any means, but it seems quite devoid of harshness or distortion which is what really gives the sensation of brightness. Indeed, well recorded piano was a delight through the 1 UP, which managed to resolve its shimmering harmonics particularly well for a 16bit silver disc spinner. This machine gives the sense of being very incisive yet not bright - which is just what you want.

Corduroy's 'London England' showed the player's bass prowess. It's not as obviously imposing as, say, a Naim CDX2, lacking that last fraction of a percent in dynamic articulation, but I was struck by its natural tone and organic tunefulness. If anything, the CDX2 - which is acknowledged to be excellent in this respect - timed in a slightly more 'frigid' way. The Electrocompaniet's bass just seemed to sashay along like the coolest swinger at the party, making it all seem so effortless and unrehearsed - and, more to the point, so enjoyable. This player's low frequencies are strong and weighty, but not conspicuously so.

Give the 1 UP a bass driven song like The Emotions' 'Best of My Love', a classic slice of late seventies disco, and the result is a riot. The suppleness shown down below runs right up to a very tuneful midband, bristling with percussive details which are beautifully syncopated; drums, hi-hat cymbals and maracas started

and stopped with great alacrity. Better still, the player is able to sew together all this transient information in a wonderfully lucid way, making for an extremely enjoyable listen. A late seventies analogue recording such as this is also a great showcase for the Electrocompaniet's treble finery. Cymbals are resolved with finesse, a great deal of space around them, crisp leading edges and a long, natural decay. They're not anywhere as nice as the sound of a good moving coil cartridge tracing a vinyl groove, but just about the best I've heard at this price all the same.

A Linn Records release of Mozart's 'Colleredo Serenade' (Scottish Chamber Orchestra, Alexander Janiczek) crystallised the EMC 1 UP's true character for me. A majestically wide recorded acoustic within which there was a tangible sense of atmosphere and perspective, beautifully rendered solo instruments (brass had rasp, oboes a 'reedy' sound and violins

a compellingly musical yet highly finessed and subtle performance. It is less obviously 'voiced' than its rival Naim CDX2 for example, sounding slightly less conspicuously powerful and dynamic but certainly no less captivating - indeed if anything it is more beguiling and nicer to listen to over long periods. As such, there's very little to touch it for those wanting a CD player at this price - it's a brilliant upgrade from 'super budget' machines like Astin Trew's AT3500 and yet easily capable enough to make buyers of more expensive machines like Accoustic Arts CD Player 1 Mk2 think again. So if you're in the market for your first serious CD player - or even your last - make sure you hear this.

REFERENCE SYSTEM
 Marantz CD63 KI DP CD player
 Sugden IA4 integrated amplifier
 Yamaha NS1000M loudspeakers



came with body) and tremendous sense of vivaciousness in the musicianship, together made for an immensely enjoyable experience. This player proved able to communicate both the fine details of the music and a visceral sense of occasion without drawing attention to itself. I found it all too easy to sit in front of the system, getting 'lulled' into the music, distracted from my task of attempting to ruthlessly deconstruct this player's abilities.

CONCLUSION

An interesting one, the Electrocompaniet EMC 1 UP. In design, build and finish it is more quirky than you might expect from an awowedly professional purveyor of high end hi-fi, but in performance it is not. Instead, this CD player greets you with

VERDICT ●●●●●
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- FOR**
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 - easy to listen to
 - balanced operation

- AGAINST**
- slightly 'industrial' finish
 - awful remote
 - fiddly set-up

MEASURED PERFORMANCE

Our analysis of frequency response of the EMC 1-UP shows it is all but flat, falling by just the smallest amount - a mere 0.1dB - at high frequencies. The measured high frequency limit was a normal 21.3kHz (-1dB) and the low frequency limit a very low 2Hz. The EMC 1-UP will sound accurate as a result, and free from undue brightness or warmth due to response errors.

Distortion was well suppressed throughout the player's dynamic range and this helped significantly toward a good EIAJ Dynamic Range value of 111dB being achieved, amongst the best, if not quite the top of the tree.

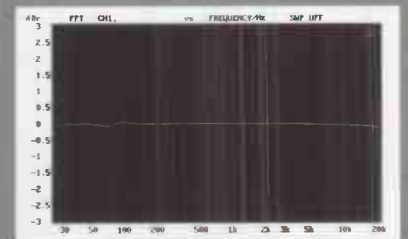
Noise was very low and output level a healthy 2.4V. Signal related jitter from the digital output, via both unbalanced and balanced, was on the high side, a 1kHz -60dB tone experiencing 500pS, compared to around 80pS expected. Random jitter was also a little high, peaking at around 40pS against 10pS expected. This suggests the EMC 1-UP isn't ideal as a transport.

The EMC 1-UP measures well in all respects except via its digital output, so as a CD player it is up with the best, if as a transport it isn't. NK

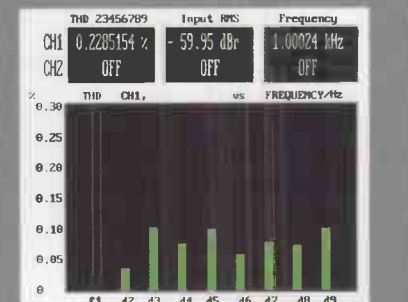
Frequency response (-1dB)
 CD 2Hz - 21.3kHz

Distortion (%)	0.004
0dB	0.003
-6dB	0.22
-60dB	3.9
-80dB	
Separation (1kHz)	-120dB
Noise (IEC A)	-113dB
Dynamic range	111dB
Output	2.4V

FREQUENCY RESPONSE



DISTORTION





Primo Facie

This new preamplifier's beauty has to be more than just skin deep to justify its heady price tag. David Price auditions Musical Fidelity's new £7,900 Primo...

Of all the products in the hi-fi jungle, the preamplifier remains the most unfathomable beast. Lest we forget, in the old days it was universally regarded as vital to the correct functioning of the overall system. After all, it came with a range of tone controls and warp and scratch filters, plus a variety of phono equalisation settings, all absolutely necessary to make any sense of the records, vinyl or shellac, of the day. By the nineties however, many were questioning the need for a preamplifier at all - what with Compact Disc players outputting line level, surely all you needed was a passive volume control?

In the space of thirty years then, the breed had gone from hero to zero - almost. These days, I think the pendulum has swung a little back the other way. First, a 2009 hi-fi system now regularly runs a wide variety of sources, from Sky box to DVD player to network music player. Second, at the high end, there's been a move to fully balanced operation - which undoubtedly gives better sound - and this has sparked renewed interest in preamplifiers as a breed...

It's still hard to figure, though.

Spending my formative hi-fi years in the eighties, the conventional wisdom of the day was 'less is more'. The ultimate preamp, went the reasoning, was *no* preamp, and if you couldn't have that, then get a passive volume control and simple hard wired source switching unit. The idea that you should have a massive box, packed with components like Musical Fidelity's Primo was an anathema...

Packed the Primo certainly is, being a pure Class A, triode based, fully balanced affair running no less than fourteen selected ECC81 tubes. Both the balanced and single ended output stages have two pairs of output tubes in parallel, rather than driving the load with a single tube configuration. These are all obligingly illuminated by blue LEDs from underneath, so one peek inside through the case ventilation grille proves a sight for sore eyes for those of the tubular persuasion!

The Primo's power supply is housed in a rare earth, mu metal screen to ensure that there is no magnetic interaction with any of the delicate signal-handling components. There is a separate, fully regulated HT and heater circuit for both channels. They both have a 'soft on'

feature which helps to ensure long tube life. Musical Fidelity claims the Primo's tube life will be around ten thousand hours, subject to the vagaries of tube manufacture.

The result is excellent claimed technical performance, including very low noise and distortion regardless of the volume control setting, and with a flat frequency response [see MEASURED PERFORMANCE]. Musical Fidelity says it is capable of driving "any amplifier in existence with any reasonably conceivable length of cable", in a highly linear fashion.

As befits a product costing £7,900, it is very well made and finished - easily superior to the equally massive, albeit cheaper £6,000 ECS Pre I reviewed back in May 2007. This is one of the few British designed products that gives the sort of Japanese battleship build that so impresses when you use it - you can see it's been designed with one eye on the US high end market! The front panel is machined from solid military specification aluminium billet, with a quality of finish similar to that achieved on the latest Apple MacBook Pro laptops, for example (which is high praise, for those who



haven't been to their nearest Apple Shop recently). The inset 'Primo' badge is made from medical grade stainless steel. The top and sides are machined from solid and finished in a superb satin/matt black, and all the bolts are neatly countersunk - no nasty screwheads poking out here. Source selection buttons work crisply - all that's needed is a gentle touch to activate them - and the volume knob moves smoothly, although doesn't quite have the sublime silkiness from that of the Marantz SC-7S2, for example. Full marks to Musical Fidelity for the remote control, which is a thing of beauty - but don't lose it because a replacement will cost you £175!

Round the back, the Primo's rear panel is a declaration of high end intent. There are four line inputs via balanced XLR or RCA phono, all switchable by associated sliders, plus tape monitor inputs (a nice touch for those like me currently running a three head reel-to-reel), and a choice of either RCA phono or balanced XLR outputs, unswitched and working in parallel. There's also the usual IEC mains in, with a master on-off power switch. My one single criticism is that, despite the obvious solidity of the build (there's more metal in this preamp than in most power amplifiers), the case is a little too resonant. Rap the top with your knuckle and it's not quite as well damped as it could be; possibly this is the sexy looking top mounted black wire mesh Musical Fidelity use to provide cooling air to the case? Antony Michaelson assures me that with later production samples this won't be an issue.

SOUND QUALITY

The 'best preamplifier is no preamplifier' mantra that so many audiophiles merrily chant is not easy to disprove, but that doesn't mean it is necessarily correct. In practice, most preamps are so bad that, yes, it's best to dispense with them altogether - and I have to say that it's particularly the case when there are transistors inside. However, a good valve preamplifier (which by its very nature has relatively simple and straight circuit topology) has a far better chance of working well and actually bringing something to the party rather than walking away with it. Indeed, any colourations, character or differences it lends to the sound *can* be beneficial, whereas with transistors it's almost always the reverse. Put simply, solid-state sucks the life out of the music, whereas valves seem to breathe life in. And so it proved with the Primo...

However, whilst a nice euphonic valve preamplifier might work wonders with low to mid priced ancillaries, removing as it would their generally bright and hard nature, this is not what you want from a high end design such as this, which has to aim for as much transparency as is possible from glowing glass bottles. I'm happy to say that the Primo also proved able to carry the original signal through very faithfully, sprinkling just a little 'magic dust' on it as it passed through. Here we have a preamplifier that's about as transparent as valve preamplifiers get, yet retains the 'best of bottles' in the sense that it's still unmistakably a valve preamplifier. It's very clean and open, yet there's that slight sense

of, "hang on, is this recording really supposed to sound this good?"

Fun Lovin' Criminals' 'Love Unlimited' positively strutted out of my speakers. Massive, majestic, swaggering and so obviously pleased with itself, the Primo produced a wonderful sound, one that just left me wanting more, and wondering why I hadn't heard it like this before. Tonally it was as if everything had been, as someone once said, "psychedelised". The music took on more colour, with bright, glistening highs, deeper and richer bass and a midband that made most transistor preamps seem like a black and white photocopying machine. At the same time, the Primo served up an infectious musical groove, sounding as fast as you like yet relaxed and unfazed with it.

Simple Minds' 'Someone Somewhere in Summertime' via SACD was a fascinating case in point. Via an MF Audio Passive Preamp (transformer coupled, balanced), the song was delivered very cleanly and matter-of-factly with a tidy recorded acoustic and oodles of



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detail breaking through. Switching to the Primo, I found that vocalist Jim Kerr took on an altogether more ethereal presence, sounding larger but a little further away. At the same time, the drum track gained a decibel or three, the Primo being able to showcase the punchy rock rhythm of the song, spotlighting the kick drums and making the cymbal work sparkle. The MF Audio by contrast, was tidier but more constrained, offering a less exuberant and ultimately more disinterested musical performance.

This is a fascinating comparison, as the MF Audio has fared very well against every other preamplifier I've ever had in my system - except this one. Still, I can't let the Primo have it all its own way, as compared to the MF Audio's transformers, the Musical Fidelity's complement of valves does seem to be adding just a smidgen of character - there was an ever so slight loss of focus at the back of the recorded acoustic, and less precise imaging within. Yet the Primo's 'character', if you can call it that, was wholly positive. It was like pressing a 'stereo wide' button, pushing the song out into the room with such enthusiasm that it was hard to go back to the more prim and proper MF. It also shone a light on the leading edges of the bass drum, snares and cymbals, giving an apparently faster and more energetic rendition of the song. Surely this is the 'magic dust' that a great valve preamp is supposed to dispense?

Soul II Soul's 'Keep on Moving' was another joyous occasion through the Primo, being a perfect partner for its style of music making. Caron Wheeler's creamy vocals were an arresting counterpoint to the hard Roland TR808 drum machine beats, and that contrast wasn't missed through this preamplifier. It gave a wonderfully sumptuous bass drum sound, driving the song along like a swinging sledgehammer. Meanwhile, those gorgeous string flourishes and piano pads filled in the mix to make an expansive, powerful sound. Switching to the MF Audio, and the result was less convincing. Despite showing a tad more grip on the sequenced bassline, the music was less emotionally engaging and drier tonally, hi-hats in particular losing their glint.

Highly processed modern pop, albeit an excellent example in the shape of The Flaming Lips' 'One More Robot/Sympathy 3000', again proved pure pleasure with the larger than life Primo. The song's swaggering bass guitar runs, in which the bassist goes up and down the fretboard as it's panned across the stereo soundstage,

acquired a new importance with the big Musical Fidelity, and they suddenly made sense in the context of the song rather than sounding more like a good idea that didn't really work, via the MF Audio. Likewise, its massive soundstage gave the song a far more 'other worldly' quality, which is just what producer Dave Fridmann was doubtless trying to achieve. With few instruments present in this song that weren't heavily flanged, wah-wah'd or other effects pedalled, it was hard to appreciate the Primo's neutrality, but again switching to the MF Audio I found the sound lost its lustre.

Moving to a Linn SACD of the Scottish Chamber orchestra (Sir Charles Mackerras conducting) playing Beethoven's Piano Concerto No.3 in C minor, and this preamplifier duly served up its trademark galactic recorded acoustic, wonderfully wide and deftly projected right into the room when needed, but also able to hang seemingly miles back. Piano had a beautiful tone, the instrument's



harmonics captured with every last glint and gleam present, yet there was real richness in its lower registers, which invested body not boom. Strings shimmered and scraped in equal measure, this preamplifier showing it doesn't simply airbrush out an instrument's natural patina. And once again I found the performance captivatingly musical, with bold dynamic shading and a pacey, purposeful gait.

CONCLUSION

Normally when assessing preamplifiers, it's about measuring how much it detracts from the listening experience - it is very rare that you find one that actually elevates it. But so it is with the Musical Fidelity Primo - an admittedly extremely expensive design that uses a big brace of valves and meticulous circuit design to give an expansive, punchy and musically expressive sound - infused with

REFERENCE SYSTEM

- Michell GyroDec/Michell TecnoArm a/vdH The Frog
- Note Products Phonote phono stage
- Arcam CD192 SACD player
- MF Audio Passive Magnetic Preamplifier (silver)
- NuForce Reference 9SE monoblock power amplifiers
- World Audio Design K5881 (modified) power amplifier
- Yamaha NS1000M loudspeakers

just a hint of that trademark tube tonality. It's not often that I hear a preamplifier that actually adds to the listening experience, but this is one and for that reason I come away very impressed.

It is of course impossible to assess the Musical Fidelity Primo in strict value for money terms, other than to say it compares very favourably indeed with my long-time reference MF Audio Passive Pre, which itself has sent virtually every other preamplifier of any price I've heard home with its tail between its legs. That the Primo is so obviously more fun to listen to, and yet no less capable in other respects, is all the

more impressive - and shows that the sort of performance it delivers is more than just competitive at its price point. As such, if you're looking for your ultimate preamplifier, then it warrants serious attention.

VERDICT

Commanding musical sound infused with a dash of that old valve magic makes this one of the very best preamplifiers around.

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FOR

- natural musicality
- cavernous soundstaging
- tonal beauty
- dynamic ease
- remote control

AGAINST

- price

MEASURED PERFORMANCE

Via its phono input and output sockets (i.e. unbalanced) the Primo offers a gain of x4.3, a normal but unexceptional amount. Whilst this is good for most purposes, it is insufficient for a low gain (e.g. x100) MM phono stage feeding a 1V input sensitivity power amplifier, where twice as much gain is needed. In balanced mode (in and out) the Primo does give a healthy x8.5 gain, but at present few phono stages (which often have very low output) have a balanced output and few power amps a balanced input, so it is impossible to use the gain available.

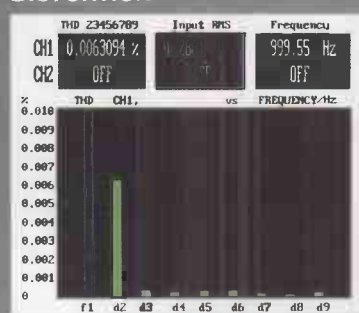
Bandwidth was wide, stretching from 4Hz to 80kHz (-1dB) through unbalanced and balanced inputs, and at all volume control settings. There was a little more noise in absolute terms from the balanced output, due to higher gain, equivalent input noise - which is what counts - was lower. Noise will be inaudible in use, and hum too as levels were low overall. Distortion was also lower in balanced mode, at 0.003% half that of unbalanced.

Like most good valve preamps the Primo accepts vast input voltages and will produce no less than 40V output in balanced mode.

The Primo measures very well, balanced and unbalanced, the latter measuring best. NK

Frequency response	4Hz-80kHz
Separation	103dB
Noise	-83dBV
Distortion	0.007%
Gain (unbal/bal)	x4.3 / x8.5
Overload	4V in / 18V out

DISTORTION



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It's not everyday you find an affordable low feedback full Class A valve amplifier like Puresound's A30. Noel Keywood listens in...

Strange Brew

Running KT88 output valves in push-pull, as Puresound do in their A30 amplifier reviewed here, is known for giving great sound quality - if done properly, that is. Puresound embellish the idea by increasing bias to Class A status and also by adding a valve rectified power supply for improved smoothness. Priced at a reasonable £1,399, can the A30 capture the great sound of a KT88 valve amplifier, making the most of it by the use of Class A and a thermionic power supply?

Having become used to the ever improving styling and finish of today's valve amps, I wasn't overwhelmed by the A30's prosaic appearance, nor the eccentricity of its volume control knob. However, the chassis is strong and its satin black powder coat finish clings to some smooth curves courtesy of a welded and buffed chassis and, Puresound say, cast transformer cases - a very ambitious

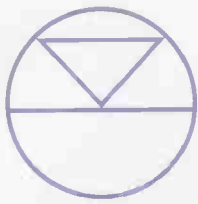
way of doing things. The A30 looks smart enough in conventional fashion and is easy to use.

Between the output valves lie switches for selecting Triode working, the idea of which is to improve sound quality, at the expense of output power. I have never been a great fan of pentodes or tetrodes strapped as triodes; the sound changes a little - and rarely for the better. And proper triodes like the 300B and 811 are very different beasts to KT88s contrived to mimic them. I am a fan of KT88s though, and have a pair of Quad II-eightys in my lounge at this very moment, that use the valve in output pairs. And my own amplifier uses 300Bs in push-pull to give 28 Watts per channel, so the A30 isn't unfamiliar territory. Puresound say triode working is there for those that like its sound and who have loudspeakers sensitive enough to exploit it.

GEC's renowned KT88 was one of the last high power audio power

valves, introduced relatively late in 1956. Having the benefit of over thirty years of accumulated design knowledge behind it, this is a modern valve and a great place to start if you want to hear a decent valve amplifier. It offers a fast, clean sound balanced very much like a modern solid-state amplifier, but without the opaqueness, restrained dynamics and flat soundstaging. It is robust, has a long life and perhaps best of all is relatively cheap, being in current manufacture around the world. A matched pair of Genalex KT88s will set you back around £90 at present and since the life expectancy of a typical output valve is around 3,000 hours of use, the amortised cost isn't great, just 6p per hour with two pairs as used by the A30. So the Puresound will not be expensive to run and, using auto-bias, requires no adjustment. This is a relatively user friendly arrangement.

In front of the KT88s, acting as preamplifier valves are octal based 6SN7 (variant) triodes, now becoming



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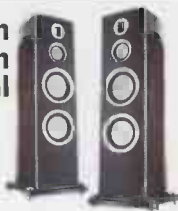


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popular for their easy, open and smooth nature. I've never used them myself in a design but agree that they give better sound quality than later miniatures like the B7G based ECC83, and what have you.

Class A avoids the low level crossover distortion of Class B but doesn't help power output and places both valves and transformers under more strain of increased standing current. Whilst Class A working has the right connotations with good sound quality and, with valves, adds little to heat output, I still can't say that it improves sound quality greatly in my experience. Measurement suggested the raised current of Class A working did the A30 no favours, distortion levels being high and the distortion pattern indicative of transformer core saturation, especially at low frequencies, where the A30 was a poor performer by modern standards. If you want to run a valve amp in Class A it needs to be designed to cope and there was little sign of this with the A30.

Valve power supplies are a different matter. They add to cost and bulk, especially if paired with chokes, but do add to the general smoothness and sophistication of a valve amplifier's sound. It's usually said this is due to the elimination of sharp switching transitions exhibited by solid-state diodes. With their highish internal resistance, in combination with a choke, valve rectifiers help ensure little noise exists on the amplifier's power lines, a situation quite different to the noisy solid-state regulators so beloved by transistor amplifier designers, whose noise is irradicable. By way of contrast, the A30's power supply, which uses one 5Z3P (5U4G) full wave diode per channel, is of a type that is noise free, if of poorer regulation than a solid-state amplifier.

SOUND QUALITY

The talents of the A30 are pretty obvious from the off and it is a striking amplifier to listen to in many ways, irrespective of what you might expect from our measured performance. Its deep soundstaging, creamy smooth and fluid sense of time domain progression, strong dynamic contrasts and delightful lack of hash or noise that make for a beautifully silent backdrop. 'Ghost Train' from the Strangers 'Dreamtime' album sounded very smooth, with a creamy yet full bodied rendition of Hugh Cornwell's voice hanging in a clear space, centre stage in front of me, his guitar ringing out a lilting theme from a deep, dark background. All I could say about this performance was lovely!

Joan Armatrading's 'Love and

Affection' sounded equally captivating. Background rim shots were easily discernible, decaying into a dark, expansive background. There were short, sharp interjections from a gruff male vocalist and suddenly a saxophone pierced out from the mix, centre stage, jumping out into the room. Looking at a digital voltmeter monitoring sound level it read 1.7V maximum, meaning I was using around 0.5 Watts, yet it sounded so much greater. Although the power being used seems miniscule I wasn't listening at an unrepresentative whisper, volume being a healthy 90+dB SPL from our Spondor S8es floorstanders. Use at low power like this goes a long way to explain why I got good results from the A30, in apparent contradiction to our measurements. At low levels, valve amplifiers are both linear and quiet, and this is where they usually sound best. Had I used the A30 with insensitive loudspeakers and really wound volume up then I expect the sound would have become muddled. So the way I used it, I could easily discern its considerable strengths; more demanding usage will likely reveal its weaknesses...

Run at conservative levels however, the A30 is an amplifier of enormous sophistication: it sets up a wonderfully rich picture of a performance that is full of lively fine detail, free from any form of edginess, yet fluid in its progression. and both easy and natural to the ear. I found bass surprisingly firm and strong, and well timed too, something of a surprise from our Spondor S8es that tend to sound a bit loose at low frequencies.

All the strengths of the A30 with Rock were equally apparent with Classical. I was aware at times of a degree of warmth, for example around Renee Fleming singing 'Madame Butterfly', but equally this could have been an absence of solid-state glare. Let's say the A30 is an amplifier with a supremely glare-less demeanour; whether this means it is warm, or just natural is arguable, although the Quad II-eightys and my own World Audio Design 300B aren't quite so cuddly, so I suspect



the A30 is a little warm. I caught the same effect listening to Duffy singing 'Warwick Avenue', but bearing in mind our Spondor S8es are not forward compared to modern metal cone loudspeakers I suspect the A30's warmth might be a perfect foil to brighter loudspeakers.

Triode mode sounded slightly softer and more diffuse in leading edge outline and temporal progression; it may suit some but it wasn't to my liking, even though I use 300B triodes. The measured hum was audible at the loudspeaker, but not at the listening position.

The A30 is quite an eye opener in many ways. Its deep smoothness, cavernous sound stage and sense of creamy purity are beguiling, its stage width studded by firm images was amazing, its lively dynamics a testament to what valves do so well. It isn't a head banging power house, but it is dynamically very lively and has a sophisticated presentation that for some - perhaps many - will seem quite extraordinary in its own way.

VERDICT ●●●●£
 Prosaic looks disguise great ability. Used with sensitive loudspeakers, this integrated amplifier's sophisticated sound shines through.

PURESOUND A30 £1,399.95
 Pure Sound
 ☎ +44(0)1822 612449
 www.puresound.info

- FOR**
- cavernous sound stage
 - smooth and dynamic
 - cheap to run
- AGAINST**
- prosaic appearance
 - poor at high power
 - warm sound

MEASURED PERFORMANCE

The Puresound moves into overload slowly, a sign of low feedback, and gave an unusual set of results. Not being especially linear, the 1% distortion overload threshold (at 1kHz) was reached at a low 6 Watts, but by another once-used criterion, 3% distortion, the amplifier delivered 28 Watts. KT88s in push-pull can manage more than this - around 35W - and at less distortion, so the Puresound wasn't especially powerful. At low frequencies (40Hz) bass distortion reached 3% at 1 Watt and this fact, coupled with a damping factor of just 2 (no feedback?) suggests bass will sound soft and not especially pure. The output transformers slewed early, suggesting core saturation.

Bandwidth was good, stretching from 13Hz up to 30kHz, although at spectrum extremes distortion was very high. At 10kHz, 1 Watt, it measured 0.6% and if this had been second harmonic only it might passed comment. However, slewing introduced third and higher harmonics which will muddle treble by a perceptible degree and again disadvantaged the Puresound.

An input sensitivity of 540mV was on the low side, but good enough for CD and all silver discs, plus a high gain phono stage.

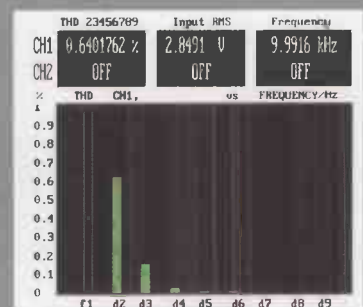
Hum was high, measuring at 2mV

at 50Hz and 2mV at 100Hz, making 2.8mV the rms sum. We considered more than 1mV unacceptable in World Audio Design amps., using screening and d.c. heaters on preamp valves to help achieve it.

The Puresound is undistinguished as KT88 valve amplifiers go, in most measured areas of performance. With valve rectifiers and low feedback it will be easy on the ear, however. NK

Power	28 Watts
CD/tuner/aux.	
Frequency response	13Hz-30kHz
Separation	76dB
Noise	-91dB
Distortion	0.6%
Sensitivity	540mV

DISTORTION





Audio Master?

With massive power across seven channels and all the latest HD decoding, Denon's new AVR-2809 surround-sound receiver should be king of the AV hill. Noel Keywood decides...

The rush to become compatible with Blu-ray is now over in the AV receiver market. Even budget receivers can cope with the last technological hurdle, DTS HD Master Audio, commonly used to code hi-def audio on Fox (as in Twentieth Century Fox) Blu-rays. Now receivers are moving into a period of early maturity where their performance is being honed - and that includes Denon's recently introduced AVR-2809 reviewed here. It has a phono stage and will play SACD, so it has audiophile credentials - but can it live up to them?

The AVR-2809 decodes SACD directly and not via conversion to PCM when Direct or Pure Direct mode is selected, page 53 of the handbook - available online from Denon UK - states. But in the confusion AV has become, it is seemingly contradicted on p39 under Direct Playback where DSD is converted to PCM! But then AV receiver handbooks are never a beacon of technological clarity. Measurement showed SACD decoding was noisy and not to any great standard in Direct mode, so I rather suspect conversion to PCM *does* take place. I've bumped into this confusion

before and suspect it is explained by the fact that DSD processing takes place within a proprietary chip, like the Burr-Brown DSD1791 or 1796 DACs, and the receiver manufacturer does not know exactly how this works!

To play SACD you will need to feed a raw DSD stream in and I use an inexpensive Oppo DV-980H DVD player, which also plays DVD-As. Currently, Blu-ray players do not play either format, although Oppo have one coming soon and Denon have a Blu-ray transport able to do so.

On the Blu-ray front the Denon has 24/192kHz PCM DACs on all channels so it can play top spec audio from Blu-ray, as well DTS HD Master Audio and Dolby TrueHD. It also handles DTS 24/96, a compressed format, and also Dolby Digital Plus, an upgraded form of Dolby Digital that graced [ahem! Ed.] DVD.

Absent are the cinema processing functions offered by THX, but this is no loss to audiophiles since they do nothing to preserve fidelity. Also missing is the new Dolby Pro Logic IIz processing scheme that processes out 'height' info for front azimuth loudspeakers, but as this demands five front loudspeakers it may not catch on too quickly. Those of you who, like me,

don't believe that more loudspeakers equals a better sound can take heart that as usual the loudspeaker set up menu of the AVR-2809 allows the front Centre loudspeaker to be eliminated, the signal being directed to Left and Right speakers equally to give ordinary 'phantom' stereo. Continuing on this theme, the rear Back loudspeakers can also be switched off, as it were (i.e. not selected).

Finally, as always this being a 'receiver', a tuner is included. It isn't a DAB tuner, nor an internet tuner, but as usual a VHF/FM and AM tuner. Nothing wrong with that of course because VHF/FM gives by far the best quality, especially with live transmissions, but you do need an aerial to appreciate this, unless you live close to a transmitter. As always I connected up my big outdoor array, in Central London, to get a strong signal from Wrotham and Crystal Palace transmitters to assess sound quality, because VHF/FM can bring in some great programmes and it still has magic. Could the AVR-2809 reveal it?

The AVR-2809 is a 7.1 channel receiver with seven amplifiers on-board. The rear panel carries nine sets of terminals because A and B front speaker sets are provided, with switching between them. The terminals

are somewhat shaky and not colour coded, but accept bare wire and 4mm plugs.

Each channel produces 115W into 8 Ohms Denon claim, and 150W into 6 Ohms. We measured 144W into 8 Ohms and no less than 240W into 4 Ohms so Denon's figures are conservative. Plenty of power is available, just over 1kW - more than enough for most homes, yet the receiver ran just warm, not hot. Although this suggests Class B operation and crossover distortion, measurement showed high frequency crossover distortion was very low, so the amplifiers are well engineered and proper hi-fi jobbies.

The AVR-2809 has Zone 2 and 3 operation, meaning it can drive two other rooms, and it even has a second mini-remote control for another room. As this means trailing very long preamp / loudspeaker and video leads I doubt many people will use it. Bi-amping the front loudspeakers for better quality is also possible.

VIDEO

On the video side, bear in mind an AV receiver passes video through to a TV screen; it does not need to process it. Blu-ray players like Samsung's excellent BD-PI500 - price now just £150 - output native hi-def video from Blu-ray and upconvert DVD Standard Definition to high definition specification, so receiver processing is unnecessary. All the same, like its rivals, the Denon has on-board video processing to upconvert from legacy DVD players (they do load faster than Blu-rays, I must admit) and other Standard Definition sources such as camcorders. It has no front panel HDMI input for hi-def camcorders though, a peculiar omission on all current receivers; HDMI's are on the rear panel only.

As always video inputs take the form of analogue Composite, S-Video, Component and digital HDMI. There are two optical and two electrical S/PDIF digital audio inputs. Outputs to the TV are also in Composite, S-Video, Component and HDMI form.

HANDBOOK

I found Denon's handbook explanations and control logic baffling and the remote control unit bizarre in the way it operates. Tuning the VHF tuner, for example, entails selecting Amp on the remote control in order to use the Tuner select button. After the tuner has been selected by pressing this button a Tuner symbol must be pressed on the remote display panel to bring up tuner functions on a dim display that promptly turns off, because it is on a short ten second default time!

The remote display must be adjusted to stop this happening and make it usable by choosing full brightness and the maximum on-time of twenty five seconds (p61 of manual). Then tuning can be carried out using two obscurely marked Up and Down display symbols which my fingers slipped off, rather than the usual - and available - Cursor buttons...

I understand the need for function related sub-menus (tuner in this case), but they should come up by default when Tuner is selected. Worse, the Tuner sub-functions don't work unless Tuner is toggled to get DEVI mode - does this make any sense? It was a bizarre control sequence, nothing like I have encountered before, unintuitive and very poorly implemented too. I suspected this to be the work of a Chinese OEM manufacturer, but it is from their own design departments. The simple, small auxiliary remote was easier and faster to use.

Similarly, selecting a function in the On Screen Display often required the Enter button to be pressed, but during Audyssey loudspeaker tuning the Enter button was unused, Cursor Left taking on the role. Er - why?

SET UP

Denon fit Audyssey loudspeaker tuning with MultEQ XT equalisation of frequency response using a nine band graphic equaliser. Whether this is kept in circuit when Direct or Pure Direct are selected is optional. The results of tuning can be viewed and both equalisation and tone control functions can be set manually. As usual there is only one bass band at 63Hz, too high in frequency to lower room length mode peaks, but able to trim the trough of a 9ft wide/high room.

Audyssey in the AVR-2809 insisted my front loudspeakers were out of phase when they were not, and when all previous Audyssey systems I have used said no such thing! But the handbook said (p25) it can do this, so ignore it, which I did. The rear loudspeakers were set 7dB above the fronts (2dB is correct) making the rear channels dominate so much they effectively became the fronts with music like Carlos Santana's 'Supernatural' (24/96 on DVD-A), strong in rear channel information. This isn't uncommon though, most receivers suffer this when Audyssey tuned. I tend not to take Audyssey too seriously as a result, manually tuning instead...

Switching in Audyssey equalisation made everything lively, that's for sure, but because volume went up over Flat, and

because Dynamic EQ comes in to alter the recorded dynamics. Denon's Audyssey system applied excessive EQ (my room is acoustically treated and does not need it) and was especially intrusive, raising the upper midband to screech level, but EQ can be set manually if wished, as can channel levels for a more natural sound. There are many options buried in many menus and the Denon wasn't especially easy to understand in this area, my usual benchmark Marantz SR-8002 being both simpler to understand, set and use (and Marantz comes from the same parent company).

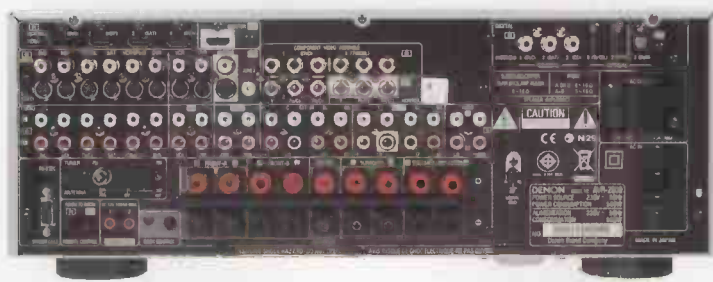
I wasn't impressed by the somewhat random nature of all this and wonder how many users will ever understand what it is all about. It's the worst implementation of Audyssey I have come across, and is a mess.

SOUND QUALITY

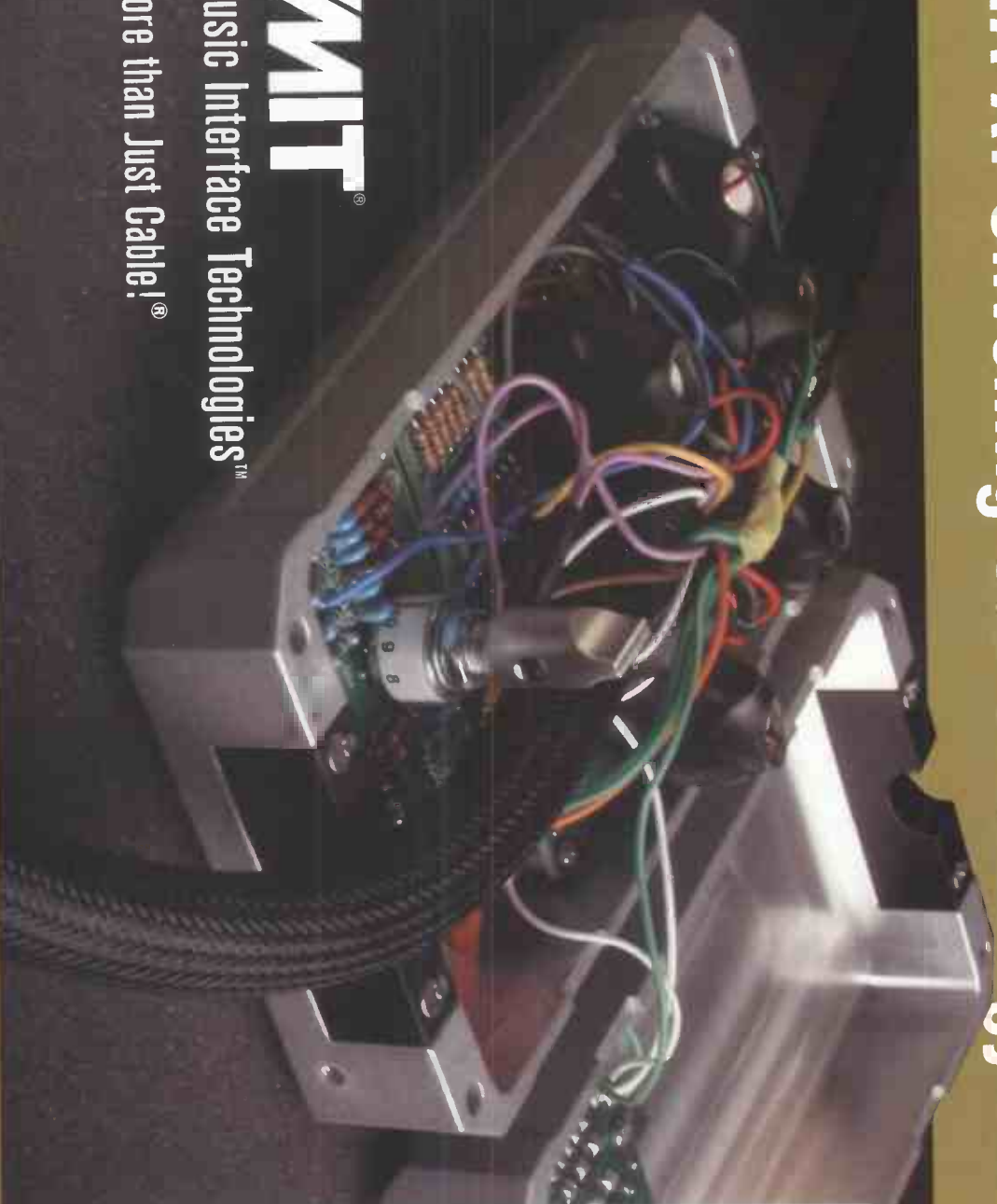
With CD the AVR-2809 put up a fair performance, a nice sense of midband clarity making vocals easily accessible, so Macy Gray's husky tones were made nicely apparent in front of me on a seemingly clear soundstage of good width. Bass was of good weight, if a little temporally vague, making rhythmic timing unexceptional. The AVR-2809 - in Denon fashion - possessed strong upper midband detail that brought bite to steel string guitars in Santana's 'Yaleo', but upper treble was polite to the point of reticence. This didn't trouble me, since I prefer not to hear hissy upper treble of mediocre solid-state amplifiers. Whilst the AVR-2809 is a tidy performer with CD, using a low jitter Samsung BDP-1500 connected via S/PDIF optical cable I should add, it isn't going to win any prizes for sounding svelte; at times massed strings sounded edgy, even in Pure Direct.

Sadly, the picture did not improve greatly with SACD. The stage widened and depth perspectives grew a little, but strings at times hardened and grew a little coarse in Beethoven's 'Eroica', fine detailing wasn't too obvious and the overall picture was not as sophisticated as SACD can and should be.

With 24/96 PCM from DVD-A the Denon was again a nice performer,



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Robert Harley, *The Absolute Sound*,
February, 2009

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Carlos Santana's guitar rang clear, its strings sounding almost sweet, yet the many percussive strands on 'Supernatural' were not strongly differentiated. It was more a pleasant performance than a dramatic one.

Playing either DTS HD Master Audio or Dolby TrueHD from Blu-ray caused a bright blue HD logo to light on the display, but not 24/192 PCM from the Trondheim Soloists I was amused to see, nor 24/96 PCM from the Chris Botti concert on Blu-ray, both high definition signals. The Denon suited 2L's recording of the Trondheim Soloists, however, smoothing out its light balance a little and adding just a bit of lower midband body to the sound. Differences between basic PCM, DTS MA and TrueHD were small, but I fancied TrueHD was cleanest across the upper midband with massed strings in Britten's 'Frolicsome Finale'. Able to convey the massive swathes of filigree detail in a 24/192 signal, the AVR-2809 did a good job here; what a pity 24/192 recordings are not a little more common.

The AVR-2809 had enough power to make Nine Inch Nails 'The Hand

That Feeds' sound hard and punchy, although kick drum could have had a little more impact, pointing toward some softness at low frequencies. And I enjoyed DTS 96/24 from Within Temptation's 'Black Symphony' DVD too, but strings in the Overture highlighted some muddle even with Pure Direct selected, and drums the soft bottom end.

The Denon did a good job with film soundtracks, but I don't want to bore you with explosions, cannonballs

enjoyable all the same, the Denon sounding far less weedy than many tuners. Radio 3, Classic FM and Radio 2 all came in clearly and were hiss free, making listening to VHF/FM enjoyable.

Using a Goldring 1022GX in my SME312 sound quality from LP was characterised by good midband clarity and nicely proportioned bass, plus a smoother presentation due to the absence of D/A conversion.

"an amenable listening experience, but not distinguished, I have to say..."

and whistling BF-109 bullets.

The VHF tuner was a little soft in the upper midrange as measurement suggested it would be but the metronomic drum at the start of Billy Idol's 'White Wedding' on Absolute radio (ex Virgin) had the sort of grunt it should have and the bass line was suitably muscular too, Idol's crooning clearly conveyed. There was a little low frequency bloat but with Pure Direct selected 'White Wedding' was

CONCLUSION

The AVR-2809 isn't especially easy to understand or intuitive to use, and the remote is a horror. Sound quality is tidy and easy going, making for an amenable listening experience, especially with high definition Blu-ray audio, but it isn't distinguished I have to say - especially at the price. Both Marantz and Onkyo do it better, although the Denon is the smartest looking of all (ignoring the remote!).

MEASURED PERFORMANCE

Each channel of this seven channel receiver produces 144 Watts into 8 Ohms and a massive 240 Watts into 4 Ohms, our measurements show, making it very powerful for its size.

Distortion levels were low, hovering around 0.01% and reaching a worst case figure of 0.06% just below (-1dB) full output when delivering 10kHz into 4 Ohms - a gruelling test. So the Denon has a well engineered low distortion amplifier. As usual, Direct or Pure Direct (displays off) must be chosen to keep noise down; via the DSP hiss rises from -101dB to -70dB and even -64dB in some Hall modes - worse than cassette tape!

Whilst CD frequency response was flat and wide, reaching 21kHz as expected, higher sampling rates of 96kHz and 192kHz found on DVD and Blu-ray were band limited to just 33kHz, when ideally they should have reached 48kHz and 96kHz respectively. The Denon doesn't exploit hi-def so well, although distortion at -60dB with 24bit resolution PCM was a low 0.1%, a good result.

SACD is recognised and processed but is similarly limited to 31kHz in Pure Direct mode. It was also noisy, measuring -89dB (IEC A wtd) compared to -106dB for 16 and 24bit PCM. A -60dB test signal gave 0.22% distortion with CD, 0.1% distortion with 24bit PCM, but 0.5% 'distortion' with SACD due to this

noise, a disappointing performance.

The phono stage was accurately equalised and low in noise, so it will work well. Sensitivity has been set to 3.6mV for an MM cartridge.

The VHF/FM tuner rolls off a little early at high frequencies, measuring -1dB at 4kHz - just enough to soften its delivery slightly. Both distortion and hiss were low so it will sound smooth and clear; a pilot tone filter filters out 19kHz mpx. Sensitivity was on the low side, with 150uV needed from the aerial for 50dB hiss on Stereo and 2mV for full quieting, whereupon hiss sinks to a low -72dB.

The AVR-2809 puts up a tidy performance all round, if not an exceptional one. Performance with high definition digital, especially SACD, should have been better. NK

Power	144 Watts
Frequency response	4Hz-70kHz
Separation	81dB
Noise (A/D, Direct)	-70/-101dB
Distortion	0.01%
Sensitivity	210mV
Damping factor	42

CD/DVD/SACD	
Frequency response	6Hz-21/33/31kHz
Separation	89dB
Noise	-106/106/89dB
Distortion (-60dB)	0.22/0.1/0.5%

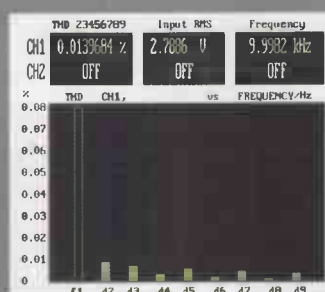
Disc (LP)	
Frequency response	12Hz-26kHz
Separation	68dB
Noise	-81dB
Distortion	0.02%
Sensitivity	3.5mV
Overload	65mV

VHF TUNER	
Frequency response	10Hz-4kHz
Stereo separation	54dB
Distortion (50% mod.)	0.18%
Hiss (CCIR)	-72dB
Signal for minimum hiss	850uV
Sensitivity (stereo)	60uV

FREQUENCY RESPONSE 192k



DISTORTION, 10kHz, 1W



VERDICT

Compact, smart and versatile, but middling sound and terrible ergonomics detract.

DENON AVR-2809 £675

Denon UK

+44(0) 1753 680568

www.denon.co.uk

FOR

- decodes all digital formats
- many facilities
- SACD and LP

AGAINST

- difficult to use
- mediocre sound quality
- poor remote control



Noel Keywood regales the cheery tale of Audiosmile's super new Kensai loudspeakers...

Happy Talk

Audiosmile is a new name in loudspeakers. I'm used to high quality miniatures, but still the Kensais took me by surprise. Not only are they deeply proficient at a technical level, they're beautifully voiced and sound wonderfully natural. No doubt about it, they are a loudspeaker worth hearing, even at their considerable £1,499 retail price.

I realised long ago when designing World Audio Design loudspeakers for this magazine that what you end up listening to is the drive unit and much of the basic sonic character of a loudspeaker comes from the aggregated sound of the units being used, assuming you've done all the basic design work reasonably intelligently. It isn't always easy to predict what their aural sum will add up to however - and this is where the Kensai is a surprise. It uses a small 12cm diameter magnesium cone bass midrange unit. Magnesium is both light and very rigid, favoured

in aircraft manufacture I recall, and by SME for their top-of-the-range tonearms, the SME V and the 312S. Metal cones are known for their 'fast sound' and indeed Audiosmile say that this magnesium coned unit has "impeccable speed and dynamics that keep pace with the ribbon treble unit".

Comments like this raise a quiet smile in my mind because I recall Raymond Cook, founder of KEF, lecturing me that drive units just do their job and cannot be 'fast', or 'slow' if it comes to that (as us journos used to say of heavy plastic cones). Why do we say metal cones, be they made of aluminium, magnesium or - now - beryllium sound 'fast' then? It's simply that they have a colour that seemingly emphasises the quality of speed. Audiosmile's mini magnesium unit does, just as they say, bring fast leading edges to percussive instruments that gives them a solid and concise time domain outline.

The follow through is a clean one though, less cold and steely in its colour than beryllium, and less saucepan-like than aluminium, if you'll pardon the analogy. It's a good choice of bass/midrange unit and Audiosmile have used a bass loading that gives about the deepest bass I have ever heard from a small cabinet. It was almost a shock, because not only does the Kensai go low - not subsonically low of course, but down to the lowest bass notes - it also has an easy and natural rhythmic pace that made my bass-heavy test tracks from Angélique Kidjo albums sound perfectly weighted. This is a test most miniatures fail, one reason being the recording and mastering engineers have made sure the striding bass lines go very low - down to 30Hz measurement shows - and are prominent in the mix. Okay, the tiny Kensais don't quite match Tannoy Yorkminsters in this department, but they were sufficiently convincing to make me smile, that's for sure.

There were other reasons to grin though. They use an Isoplanar ribbon tweeter just like the thunderous but smooth edged Leak 3090s I once used. This was a Wharfedale Isoplanar unit I recall, with a flat foil ribbon etched onto a Mylar film. Behind lay bar magnets; it's the same drive principle as used by Magneplanar loudspeakers and you can read more about it at www.magneplanar.com/maggie_tech.php. Quite unlike the spiky sounding Mylar dome tweeter that went before it in the 2075, the 3090's tweeter was a picture of civility, having an easy, soothing presentation of treble that was all but characterless, less so than most ribbon tweeters, whilst sounding as fast, if less incisive. And that more or less summarises what I heard from Audiosmile's unit; if you want to hear treble that's light, delicate and that is all but colour-free then an Isoplanar unit gets close to an electrostatic.

For me this is important because I've grown increasingly weary of emphasised and ringy metal dome tweeters; by way of contrast the Kensai tweeter is a breath of fresh air and, just as they say, a perfect match speed wise (sorry Raymond!) for the small magnesium bass/midrange unit. Heavens, Audiosmile have even crossed over between the two lower down than usual, another trick I found brought obvious improvements to matching, reducing phasiness and making for a more stable sound without the disjointedness that the usual 3kHz crossover frequency brings.

Put all this lot together and what you get, I found, is a delightfully integrated sound from a loudspeaker that has a wonderfully consistent character, largely because the drive units not only work well in themselves but also together; a symbiotic combination if you will. The Kensai is fast, yet it is also pure in its tonality, with surprisingly little character of its own.

SOUND QUALITY

The Kensai is quite forward so it makes its case known from the off. Celine Dion singing 'I'm Alive' was forward on the sound stage, brightly lit and very expressive in her delivery. There was some artifice I must admit; she did shout a bit and the amount of detail being thrown out was exceptional both because the drive units are accomplished and because the midrange adds emphasis. All the same, the Kensais picked out the backing vocalists singing "placing spirits high" with a deftness that was lovely, a quality that I returned to again and again with

these loudspeakers. What they have is superb intelligibility; it isn't entirely natural but their forwardness sits just within acceptability. Meanwhile, bass was strong yet spry and punchy and the rhythmic timing spot on.

This picture was repeated with Nigel Kennedy's engagingly energetic yet expressive renditions on violin of works such as Vivaldi's 'Spring'. Again there was some shout to lower strings on downstrokes and this made the instrument all but leap from the loudspeakers. The other side however, was that every fine nuance of expression within his playing was captured with a surety that really brought out his musicianship; the sudden, final adagio was a good example. I suspect this is partly explained by the Kensai's lack of hash and, especially overhang. Strings were also very well separated with no sign of the agglomeration that dogs so many loudspeakers when attempting to reproduce violin. In a nutshell then, with their light, airy sound and wonderful detailing and crisp sense of timing the Kensais reproduced violin almost to perfection.

This ability translated nicely to Carlos Santana's opening to 'Put Your Lights On' from the album 'Supernatural', plucked guitar strings resonating deliciously between the loudspeakers, but a little too well lit. 'Yaleo', the album's first track showed that when things got complex the overall tonal balance of the Kensais became more obvious and acted against them, producing a shoutiness I wasn't so happy about. Spinning dense, graunchy hard rock tracks like the Darkness's 'Is It Just Me?', this midband emphasis again made itself known as a light overall balance with some unwelcome emphasis to middle within the recording I suspect. So whilst some dense music - from Goldfrapp for example - slid past very nicely indeed, the Kensais didn't suit messier heavy rock tracks, which suffered from their emphasised midrange. But then emphases or de-emphases - of all sorts (I am exchanging emails with a manufacturer at this very moment

objecting to their decision to put a dip where the Kensais have a peak, because I feel it detracts from an otherwise good design) are always discriminatory in influence, suiting some musical forms and detracting from others.

CONCLUSION

Audiosmile's new Kensai is a loudspeaker that justifies its manufacturers moniker: it made me grin alright. It's a nicely judged and thoughtful piece of engineering that produces a great sound, quite unique in many areas and very impressive too. I loved the intricate detailing, superbly clean and even treble quality - an area where the Kensais are in a league of their own. Their bass and general clarity is also superb, plus their lack of colour and speedy rhythmic progression. They can shout a bit at times, my only reservation as this didn't flatter some denser Rock and Classical recordings. Just bear in mind all loudspeakers have limitations and the Kensais have a lot fewer than most. So, if you are looking for high quality miniatures that seemingly offer the impossible from a diminutive cabinet, you'll find these raise more than just a smirk.



VERDICT 
Superb sound from real miniatures, with some of the best treble and - for their size - firmest deep bass you can hear.

AUDIOSMILE KENSAI £1,499
Audiosmile
☎ +44 (0)7952 478 193
www.audiosmile.co.uk

- FOR**
- highly detailed
 - superb treble
 - fast, clean timing
- AGAINST**
- some midband shout
 - low sensitivity
 - plastic cabinet wrap

MEASURED PERFORMANCE

Frequency response of this ported miniature is reasonably even across the audio band, lacking the upward tilt toward high frequencies so common nowadays. All the same, frequencies below 200Hz roll downward slowly our published analysis, and a third octave analysis, show. So bass will be light unless the Kensai is used close to a wall, doubtless as intended by its designer. Output from the small bass unit rolls down below 80Hz but the front slot port is tuned to 43Hz our impedance analysis shows, and works down to 35Hz. It provides a good degree of damping so the Kensai should have well controlled bass.

A lift in the response curve from 2kHz-4kHz will improve vocal intelligibility and output from the treble unit looks encouragingly smooth and even, suggesting it will sound less resonant than many domes.

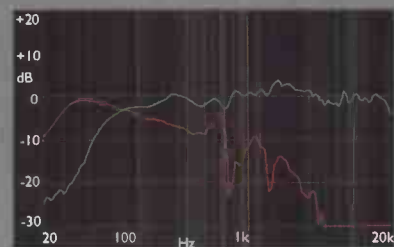
Like all miniatures the Kensai is insensitive, producing just 82dB SPL from one nominal watt (2.84V) of input, part of the reason being it uses a 6 Ohm (DCR) bass unit which pushes impedance up to a high 9 Ohms. So a powerful amplifier is needed for good volumes, at least 60 Watts.

The long term 200mS decay

spectrum was impressively clean, suggesting electrostatic levels of cleanliness.

The little Kensai measures very well. Don't expect massive bass, but it is super clean, very even and should give sophisticated results. NK

FREQUENCY RESPONSE



Green - driver output
Red - port output

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LETTER OF THE MONTH PRIZE



KEF iQ30 LOUDSPEAKERS

Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF iQ30 loudspeakers and one years FREE subscription to Hi-Fi World.

A pair of KEF iQ30 loudspeakers is on their way to **DAVID LEACH**, Letter of the Month winner in our MAY 2009 issue.

Letter of the Month

EASIER SAID THAN DONE

The hi-fi magazines frequently advise people to use a "good" dealer - good advice (as in get a good lawyer, estate agent, builder, doctor, plumber, etc.) - but how to find one? Last November - birthday coming up - I decided to treat myself to a Linn media player (and at least settle my DAC problems). So I 'phoned my nearest Linn Dealer (sixty five miles away!) and asked for an appointment to listen to the Linn Sneaky, Majik and Akurate DS, thus indicating my willingness to spend at least £1,000 and possibly £4,000. Yes, they would be delighted - just one snag - their only disc of demo music had been lent to a customer so could we do it the following week? So, fine by me.

Next week, day before the appointment, I 'phone again to check on parking. So, they were glad I'd 'phoned because they still hadn't had their disc back, so no dem was possible. Suppressing a little annoyance (had already cleared my schedule for the following day) I said okay, and could they 'phone me when a demo was possible? Okay, they would do that, but I never heard from them again. Treated myself to a bunch of LPs for my birthday instead...

I'd just like to say a big thank you to Matthew Bramble for his comprehensive and clear (I nearly understood all of it!) answer to my query about the Cambridge DAC's sampling rates (and to HFW for arranging it of course). I would query his statement that it is expensive to provide higher sampling rates in view of Creative's E-MU series of ADCs/DACs with many extra facilities starting at around £70 - although perhaps the quality at this price (or Matthew's following remark about the 16bit codec DAC/ADC) explains why 24/192 files recorded/played through



Difficult to hear at one dealer - the Linn Sneaky DS!

my E-MU 4040 sound almost identical to 16/44 files.

Nick Pledger

Hi Nick - yours is a fair point well made, and I am afraid I have heard of umpteen other such stories. I think a degree of honesty is necessary here; there are a number of people in hi-fi retail because their hobby is hi-fi, not because they're good retailers. I often say that a car salesman could sell hi-fi (given the training) but that many hi-fi sales people could not sell cars. This is a 'quirk' of our industry; it's a very specialist one, in the same way that fly fishing or Formula One is something of a specialist pursuit. We're not mainstream, and that tends to attract a certain character type; as far as retail is concerned this isn't always conducive to actually selling the products even if the customer is dangling cash in front of them. I am not excusing it, merely attempting to explain it - and it's not a situation I'm particularly pleased about because these same dealers are turning their noses up at the new generation of iPod and computer audio-interested customers, blithely dismissing it as 'tosh' (or another four letter epithet)... This sort of louche behaviour could kill specialist hi-fi.

Now, the other side of the same coin is that I have also met some of the nicest, most intelligent and well rounded individuals in hi-fi retail - running remarkable shops with a very happy staff and a customer base that's more like a fan club for them than a group of people they sell to, such is the enthusiasm their buyers show for their service. The sad thing is that it's hard to tell at first glance. For this reason you need to build up relationships with all the hi-fi dealers in your area, and decide for yourself who's deserving of your hard-earned cash. This is simply a fact of life for a serious hi-fi buyer, just as someone looking for a good car dealer can't just automatically expect that their nearest 'car supermarket' will give Rolls Royce levels of service. Think of your footwork as an investment in your system's future, and also a way of potentially saving cash. These days a lot of people think they're 'beating the system' by buying stuff online and paying 10% less, only to find they lose a lot more than this when the kit in question doesn't work in their system and ends up on eBay. I know finding a good dealer is easier said than done, but it really is worth the effort in the long term. No pain, no gain, as the saying goes!

DP



Martin Logan's The Source loudspeaker, an electrostatic panel atop a conventional bass unit, mains powered by wall wart.

PUSH-PULL?

I have read with great interest NK's review of the remarkable Kingsound Prince II electrostatics in the April issue of HFW but I am confused by his statement that "smaller Martin Logan panels are single sided because they do not handle large bass excursions". I have a pair of ML Source loudspeakers and the accompanying handbook confirms that the ES panels operate in push-pull due to opposing voltages applied to the two stators. Bass is provided by separate coned drivers which admittedly are single sided. Would you clarify please?

What a pity the Prince IIs are so inefficient as they would no doubt sweep the board at their low price. Is there any prospect this shortcoming may be overcome in the future production? **IAS**

On the matter of Martin Logans, please see my answer to the next letter (nothing like being popular!).

I do not know about the future plans of Kings Audio I am sorry to say, but as you say their Prince II electrostatics would likely find a big market at their low price, if only they were a bit more amenable to real world amplification. **NK**

AND AGAIN...

When I read Noel Keywood's review, 'Plane Speak', of the Kingsound Princess II and Robson Greystoke speakers,

I noticed that he mentioned Martin Logan electrostatic speakers three times as a point of comparison with Quad electrostatic speakers. It was clear that the Martin Logan speakers were found wanting in the comparisons. Unfortunately, the issues that he raised were inaccurate.

First, he said the Martin Logan electrostatic panels are single-sided (not push pull as per Quad). As a happy owner of Martin Logan Aerius speakers for the past fifteen years, I can assure your readers that the ML electrostatic panels stand between a front stator and a rear stator and are, therefore, push-pull. All Martin Logan electrostatic speakers use the same design.

Second, he writes that the panels in the Kingsound Princess speakers are directional, much like Martin Logan panels. Are any electrostatic speakers not directional? In a review of the Quad ESL 63 speakers in the same issue, 'Swinging Sixties', Haden Boardman writes, "like all electrostatics, in comparison to conventional moving coil designs, these speakers (ESL 63s) are very directional".

Third, Noel Keywood writes, "Yes, this loudspeaker needs power to polarize the electrostatic panels, and like Martin Logans each loudspeaker comes with a small wall wart supply. My Aerius, one of their least expensive models, uses a power cord without a wall wart. I know of no Martin Logan model that does use one".

I would like to know specifically which Martin Logan electrostatic speaker models he has seen or used that have the weak points he has cited. Martin Logan electrostatic speakers have solved many of the problems associated with the genre. Some of their directionality has been tempered by using a curved panel. If well positioned, two people can sit side-by-side and hear what the designer intended. In addition, Martin Logan has solved the arcing problem common to many electrostatic designs (Quads?) by coating the stators with an enamel-like paint which makes arcing impossible. Thus, no sound-robbing or amplifier-destroying device is needed to protect the Mylar panels.

Finally, Martin Logan has made enormous progress in mating electrostatic panels with dynamic bass speakers. Each new generation improves on the hand-over from dynamic speaker to electrostatic panel. Many recent reviews, even in the British press: Hi-Fi News and Record Review and Hi-Fi+ have noted that the join between the two types of speakers is seamless or nearly so.

Martin Logan hasn't solved all of the electrostatic speakers problems. They still have very low impedance, dropping to 2 ohms in some cases. Most

competent transistor power amps can cope, but few tube amps can drive them to their full potential.

Finally, Martin Logan is a very reliable and generous company to work with. Last summer, when my home was struck by lightning, they repaired the detachable crossover free of charge. I only paid for shipping to their repair facility.

During my years with my Aerius speakers I have never suffered from listeners fatigue, nor have I ever worried about causing damage to the electrostatic panel. While I would love to buy a newer, more expensive model, my retirement pay requires that I spend my afternoons with my antique Martin Logans. They are classics, like Garrard turntables.

**Dennis Rhodes
USA**

Thanks for your e-mail Dennis - and I must apologise to you and readers for diversionary ramblings that may not have been quite as precise as they should have been. I have become quite a Martin Logan fan and to balance the picture somewhat before going into dirty details(!) on the technical side of things you have omitted my eulogies on the active Purity (£2390) in our September 08 issue and Editor David Price's similar feelings about The Source (£1599) in our November 08 issue. All the same, even as loudspeakers go Martin Logans are idiosyncratic and their particular presentation will not appeal to everyone; assistant editor Adam Smith had strong reservations about the Purities that I so liked, for example. As always, preferences in loudspeakers come down to the trade offs we are willing to make and Martin Logans demand you make them. Now on to the scuzzy bits.

I was told by another electrostatic manufacturer (!) that the Martin Logan panels are single-sided. I asked Martin Logan to clarify and they told me, "the coating on the diaphragm is on one side and is affected by both to the stators which are both active, just opposite phase." So, technically at least, the diaphragm is coated on one side, but drive is from both sides, so in the usually understood sense of the term this is a push-pull electrostatic it seems and my comment was wrong, hence my apologies. I rarely quote like this without checking facts - and you can see why!

The Martin Logan Source, which I most recently measured, has an external supply, like Kingsounds.

On directionality and integration with the bass unit I cannot fully agree with you. Under measurement

frequency response of the electrostatic panel varies substantially - much more than either conventional loudspeakers, or Quads and Kingsounds - with microphone position and you can hear this. By any standards the panel is both variable and directional.

Whilst the bass unit integrates reasonably well on-axis, it doesn't when you move away from the ideal listening position (e.g. walk around the room or sit at the 'wrong' end of a long sofa). It's all but impossible to match a dipole open panel with a monopole closed box bass unit in any shape or form and Martin Logan are not alone here. But the other side of the coin is you get electrostatic levels of clarity and low colouration, with decent bass from a compact and affordable loudspeaker - and for this I loved both the Source and the Purity. Quads and Kingsounds don't match Martin Logans in this respect so they are unique and it is a pity that they are relatively unknown in the UK.

Modern amplifiers can cope with low impedance, especially at high frequencies where little power is drawn and the electrostatic load is substantially resistive, meaning low V/I phase angle and little possible upset to an amplifier's feedback network. Valve amplifiers can handle such a load easily and are, subjectively, the best choice I feel.

Thanks for letting us know about your experiences of dealing with Martin Logan in the 'States. In the UK they are handled by Absolute Sounds who provide knowledgeable backup.

NK

TOYS FOR THE BLACK STUFF

I have decided to go back to vinyl on my favorite albums. I have also decided to do it via vintage gear rather than splash out on something new. I have spent thousands over the years on hi-fi in my single days but cannot do it any longer. I have had three systems up and running at any one time but will be looking to downsize in the future.

I find it hard to get rid of some of the gear as I have had them since new and am sadly attached to them. What would you recommend would make a good vinyl front end using the hi-fi I have used and acquired over the last twenty one years?

I have just bought a Yamaha YP-800 Direct Drive turntable and would like a second turntable as well in the system to tweak and compare and have fun with and would appreciate your advice on which to choose, either a Thorens 1501/601/661/125 Mk2s or a Systemdek IIX. The Yamaha YP-800 has the following specs and I would value your opinion on what cartridge to buy.

Do I have to buy a stylus as well or does the cartridge come with one? These are the details of the Yamaha YP-800 Service manual I downloaded.

*Tone arm Type: Static Balanced S Type
Length: 242mm (9.5")
Overhang: 15mm
Tracking force Range: 0-3g
Usable Cartridge Weight: 3-24g
Shell: Aluminum Die cast, Universal Plug in Type (EIA)*

I am awaiting a house move in a couple of months and all my hi-fi has been in storage for the last six months and I am struggling to remember the model numbers, but here goes. The hi-fi I can use to build the system include the following to choose from:

Amps: Mission Cyrus 2 & PSX (my first entry into hi-fi) modified with uprated components by Graham Nalty (Sonic Link) some years ago. AVI REF:2000 MC integrated, I think 40W valve push-pull amp 4xEL34s by Symphony Audio I think off eBay from Hong Kong - I absolutely love this. Aura V80 SE-x Marantz PM7200 KI A+B Class, Sony TA-F808ES, Yamaha CR-1000 receiver (bought second-hand).

Speakers: Mission 751 with external crossovers I built using Russ Andrews to source the parts (I sent them a crossover and they informed me what parts I would need, i.e. air cored inductors or something if I remember rightly). Mission 752 floorstanders, Proac Response 1-SC, Musical Fidelity MC2 Mk2, Sony SSG1 Mk2

CD: Micromega Drive 3 and Stage 3 DAC, AVI Ref 2000MC Pioneer PDS505 Precision, various Sony CD Players including CDP- 555ES, CDP-XA2ES, Sony SCD-930QS & SCD-940QS SACD players.

I listen to AOR (Adult Orientated Rock), Classical, MOR (Middle of the Road), Choral, Contemporary, Country, etc. and I particularly like hearing good female vocalists.

Lee

Hi Lee. I have no experience of the YP-800 but from the details you supply and internet pictures it appears to have a fairly standard tubular tone arm with removable headshell, of medium to high-ish effective mass and probably with

decent low friction bearings. The arm will likely ring like most of the old, undamped structures, so it will likely sound amenable if fitted with a decent, modern cartridge, but not especially well defined and forceful in the lower midrange and upper bass region. Our usual advice here is the get an Ortofon 2M Red or Goldring 1012 or 1022GX cartridge, all of which come with styli.

For a second turntable, consider one from this month's group test such as the superb new Avid Diva II - and our measurements suggest a Rega RB301 arm is worth going for. Either a Systemdek or Thorens turntable could support a modern RB301, or an older RB300, with which they are often supplied and these may suit, but they are not on the pace.

I've never seen such a hoard of equipment - you seem to be buying it magpie-style. My suggestion is to stop! If you like your valve amplifier, stay with it, select the sources that suit you best - and sell the rest. Not all that is old is gold: you are stockpiling product, often cheap from eBay it seems, that is behind the technological curve.

On loudspeakers, I would suggest you consider getting some good, modern floorstanders of high sensitivity and as you don't want



A golden oldie perhaps, but the Yamaha YP-800 arm has limitations.

to buy any more equipment, try Q Acoustics 1050is, reviewed by us in our November 2008 issue. These £340 floorstanders are a budget dream and will suit your amplifier.

NK

STUNNING MELODY

Dear Mr Price. My name is Tomas Lundqvist and I live in Stockholm, Sweden. I'm a frequent reader of your magazine and often find your judgements on components to agree with my own. For instance, I first became aware of the Melody preamplifier through your magazine, now I have one, and as you said it is "stunning".

I'm now in the process of replacing my Rega P5 with something more sophisticated, after all this is my hobby. I only play soul music from the nineteen seventies and more precisely Philly-soul. I need a table that can dance, it should have lots of dynamics, drive and quite a bit of punch. Where do I go? I have recently auditioned a number of high-end tables and they all sound good but I find them all (to various extent) lack the drive I need.

In general, should I be looking for a lightweight unsuspended belt-drive? I read your review of the Avid Acutus in the March-issue. I also read your review of the Volvere Sequel, about a year ago. The Acutus is beyond my limits but the Volvere is within. Could this be what I'm looking for? I have no option to audition these tables in Sweden.

Tomas Lundqvist

Just a quick thought Tomas: the Garrards (301 and 401) are known for their solid bass punch and enormous grip on pace, at least when mounted on the massive plinths they demand. Use a good, modern arm like the Rega RB301 or better and you will, I assure you, have the paciest and most dynamic sounding turntable going. As you have splashed out for the truly stunning Melody 101d you may like to consider an SME IV or V. Life could not get better! **NK**

Yes - if you're up for considering a classic deck as well as a new one, then a perfectly restored Garrard mounted in a good plinth (like a Loricraft or Bastin) is a no-brainer. As Noel says, the 301/401 is wonderfully bouncy and musical in a 'seat of the pants sort of way' - it's the musical equivalent of a terrier in a Saint Bernard's body!

If you're going for a modern deck, then the Volvere Sequel is about as close as you'll come to this 'breed' of sound. It is very big, powerful, fast and expansive, with a really physical and muscular sound. However, it is more 'technical' sounding than the Garrard, with more detail and insight, but a fraction less bounce.

Perhaps a better compromise, particularly if your discs aren't brilliant modern recordings, would be the Michell Orbe SE, which lacks the out and out grip of the Avid, but has a very wide and fulsome sound with a slightly less rigorous side; it's a more beguiling music maker that's less obsessed with the recording quality. The Michell is still a fairly neutral deck, but if it's real euphony you want, then Linn's LPI2 is still an important contender; it is magnificently musical, in a way that only the Garrards can approach. Whilst it



A stunning preamplifier like the Melody 101d needs an equally stunning turntable to go with it.

doesn't have the deep seam of detail of the Avid and Michell, nor the sheer physical size, with not-terribly-well recorded, rhythm based music, one could argue that it would be the most fun of all! As ever, get some demonstrations; travel the continent if necessary, as this is an important purchase and you can't buy blind. **DP**

AFTER SCHOOL

What sort of trips does Adam Smith go on and who on earth are his friends who he classes as avid music lovers? "We were all utterly dejected by the inevitable news that the painful screeching and warbling of the latest X Factor winner had become the Christmas number one". I stopped caring about this musical irrelevance when I left primary school.

Chris Mitchell

Hi Chris, well as Adam's not here to defend himself then I am forced to agree! What an embarrassing revelation, admitting that you watch the 'X Factor'? I do apologise for the sort of riff-raff we let in to Hi-Fi World Towers these days. We'll tell the doorman to send him on his way, next time he dares to show his sorry face! **DP**

TOP TAPE

Hi David. I read your article with interest about the Nakamichi CR7E cassette deck.

Is it better than Tandberg 3014a or 3034a, Revox B215, Luxman K-05, Harman Kardon TD4800, Akai GX95 or Nakamichi 1000ZXL?

Vince

Simple - the Nakamichi CR-7E was the best of all, even better than a Dragon and my own, now-laid-

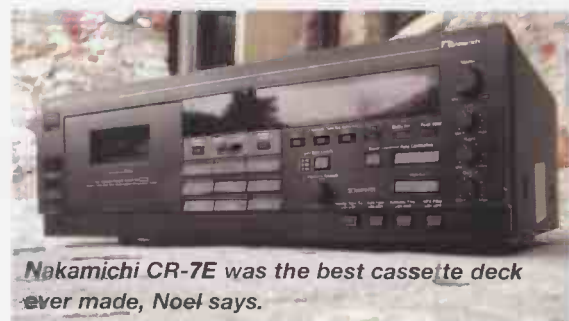
up ZX-9. If you can buy one for posterity/the museum/your children to marvel at, then do. **NK**

Hi Vince - I think I'd agree, although I do find the Nakamichi record/replay electronics a little 'dry' sounding. In fact, on a good day, down hill with the wind behind it and with the right tape, I'd say the Sony Walkman Pro would give it a run for its money, as would a Sony TCK-81. Also, anyone heard a well fettled Bang & Olufsen BE2200? I kid ye not - watch out for a feature soon... **DP**

DAB HAND

I find Hi-Fi World's comments on DAB radio interesting, as you may well know from my previous scribbles. Recently I was listening to Absolute Radio (nee Virgin), and when they tell you how to listen to the station they say Listen on DAB radio in London, digital television nationwide, or online at www.absolute-extreme.co.uk. It's the first time I've heard DAB coverage qualified by region. DAB in London! I guess it's what a lot of us suspected anyway, that DAB lacks - urm - a bit of nationwide coverage shall we say? But interesting all the same.

Melvyn Dover



Nakamichi CR-7E was the best cassette deck ever made, Noel says.

Yes indeed Melvyn. And funnily Hi-Fi World does listen to this (amongst others) daftly named station in the London office on DAB and it breaks up continually. I suffer the same problem with DAB at home, just a

few miles from the Alexandra Palace (North London) transmitter. It's known that DAB transmitter power is too low for reliable reception in London and yet they shamelessly promote it, and that's the wonder of DAB - as you know. **NK**

NETWORKING

I feel the future may well lie in home networking for music delivery, it would certainly make multi-room installs easier and cheaper. And now that the dreaded DRM is fast disappearing (thank the stars) studio quality is becoming digitally available. Now is the time to really think how to implement the new (old i.e. Ethernet) technologies. I admit the Naim HDX and Linn Klimax DS are superb in their own right (I would love to own either one) but neither have really got it right. To be really effective the main parts of the system should be as follows: the front end should be a combination of both systems, no hard disks in the listening room. With a high quality CD recorder/player built in for copying (over the network) purposes, a high quality DAC with a good range of inputs, a good hi-def display system and Gigabit Ethernet (this is because most folk would combine this within an existing home network, and it's relatively cheap but reliable) in other words a combination of both the Linn and Naim systems.

Storage should be a dedicated NAS device using RAID 5 or possibly RAID 6 for even better fault tolerance, and should be built to enterprise class standards using enterprise class hard disks (after all we have all lost files at some point in our lives). This should be easy to back up to a separate removable disk or tape system. After all, this is a lot cheaper than most quality hi-fi components. And using Open Source software through out.

I would be interested to hear of

and only proves my point. Do I need cassettes to back up my LPs? Er - no! Do I need to have duplicates of all my CDs, or DVDs or Blu-rays? Again - no. Continually suffering the agonies of hard drive failure, which is as bad now as it ever was and a blight upon digital life, I feel that only when we find a durable and reliable alternative will the valuable digital information we all possess be safe and digital storage match the convenience and durability of old analogue systems.

*Are solid-state hard drives (SSD) the answer? I see Samsung are quoting 2 million hours as Mean Time Between Failures for their 64GB SSD costing £300 and OCZ quote 1.5 million hours for their Vertex Series drives. Whilst expensive, SSDs are not unaffordable, but are faster than mechanical drives and silent. Although they can fail, it is commonly write failure, not read failure if I understand it correctly, so data loss should be acceptably rare. This looks a promising way of storing music and a good basis on which to build a network storage device that can download hi-def files and distribute them in the home, without noise and ephemerality. **NK***

CLASSIC CHOICE

Many thanks to David Price for responding to my letter on a suitable partner to the Creek OBH-22 preamp. As a newcomer to the world of hi-fi, it is inevitable that I should make mistakes, especially when interpreting something that appears to be confusing - given my limited knowledge.

Anyway, as I have about £1,000 to spend, and the Creek will consume almost a third of that, the power amp should, hopefully, cost no more than about £700. Naturally, I would prefer to have as much change as possible

oldie out there that will fit into my budget.

Many thanks for publishing a very enjoyable, and stimulating, magazine. Should letters be graded into Beginner (B), Intermediate (I), and Advanced (A) by the writer - so that Mr Price can know what we are basing our understanding, or lack of it, on?

Bert Halliday

Bert, why not get the Creek Classic power amplifier, price around £650? All Creek products sound great I find; I am a real fan. They offer great value for money and the Creek sound is both superbly balanced and relatively sophisticated (e.g. treble quality is usually sweet and not transitory). This fits your budget, does it not?

NK

*Sorry Bert - I am afraid you weren't terribly clear about budgets, and I can't be expected to guess, can I? Indeed, I'd just like to take this opportunity to ask all readers sending queries in to remember to specify how many spondoolicks you've got to splash, as it were. 'Clairvoyant', as they say, isn't my middle name! Rotel's RB1070 power amplifier (£550) is a fine alternative to the Creek, with a slightly more muscular, if marginally less musical, sound. If you can find a Quad 909 secondhand for about the same price, however, snap it up. It's a very clean, smooth and open transistor amplifier with only a slightly brightly lit upper mid to separate it from true high end designs. Reliable, well made and manufacturer serviceable, it's a cracking second-hand buy. **DP***

OLD V NEW

I buy your publication at a local bookstore in the USA, mainly because I own a lot of equipment made in the UK, and I find yours is an independent attitude that I enjoy over the conventional ones. The one question I have has to do with audio equipment that is, say ten years old and to my ears, still viable today. Are there any reviews in the works that would pit some older equipment against the newer models, either in the same, inflation adjusted, price/cost arenas, or brand families? I would be very interested in hearing how, say, my Sonneteer Sedley phono preamp would compare to one of today's \$1,000+ phono stages. Have there been any great leaps forward? Or, say, would my eight year old Audio Note M2-B preamp compare favorably with one of today's newer tube models?

I'm happy as a peach with the equipment I've been able to cog together, no matter their respective ages. And I enjoy lossless WAV files as much



Get a Creek Classic power amplifier for the Creek OBH-22 Noel suggests.

other points of view, whether they agree or not. Even though I think this is the way forward I have to say that I will be keeping my LP12 front end until the end and continue to buy vinyl.

Brian Garner

Hi Brian. I sort of don't agree. My experience tells me the typical hard drive is highly unreliable and, to me, not an acceptable storage device. The need to have a disk to back up a disk (RAID 1) is barking if you ask me

(your highly paid scribes might not have noticed that there is a recession out here in the real world.) Yes, okay, I think I understand where Mr Price is coming from when he recommends the near £1,600 Rotel RB-1092: the quality of the Creek is such that it demands a power amp of a near, or higher, corresponding monetary value. But, my original thought was that there might be a power amp equal in sound quality, and of a price comparable, to the Creek. Is there? If not, perhaps there is a golden



Emille Labs KPE-2AS phono stage - expensive but a firm step ahead in modern phono stage design.

as vinyl, but I've always wondered about progress. Has it been beneficial to the music?

**John Martin Plymouth
USA**

Hi John. Progress hasn't been great, but it is there. In my experience today's tube phono stages are an obvious improvement on all that has gone before, Audio Innovations P2 excepted. If you can, try and hear an Emille Labs KPE-2AS tube phono stage if you can.

Our use of an accelerometer to test pickup arms shows old designs ring quite badly but newer ones coming through are a lot less lively and sound better as a result. With loudspeakers there has been steady progress and the best now arriving are very well researched and engineered - and you can hear it.

Progress in solid-state amplification has been made but it isn't great, but tube amps will stride ahead as new tubes - especially high power triodes - become available.

At present we have no plans to compare old with new. A lot of old equipment is good value now and very enjoyable too but, with rare exceptions from McIntosh, Klipsch, Garrard and a few others, I prefer the new. What's important is that you are happy listening to music on the equipment you have. What could be better? **NK**

HAPPY TALK

I'm very happy with my system which is valve and vinyl based with Townshend Rock Mk2/ Excalibur Arm/ Flutter Buster power supply/ Reson Recca front end, Eastern Electric M520 valve amplifier and Audionote ANE-D speakers. The Eastern Electric is the most recent purchase and was an inspiring jump from my old transistor amplifier. I also use an Orelle CD player which is about fourteen years old and still sounds

remarkably civilised for its age. I have a Graham Slee Gram amp SE phono stage and dedicated power supply but have been recommended to purchase the Icon Audio PS1. I believe it would also be possible to use it directly into the preamp input of the Eastern Electric conferring the benefits of a more direct signal path and freeing up an input too.

I would be grateful for your thoughts on this potential upgrade and recommendations for a reasonably priced CD player that will not feel too outclassed by its analogue brethren. I'm fond of the Rock, though it was never pretty and the trough has not proved popular domestically. I would also be pleased to have your thoughts on newer turntable/arm combinations that would outperform the Rock and cost less than £1,500

**Mark Armitage,
Exeter**

Hi Mark - the Icon Audio PS1 is a fine valve phono stage, and if you're looking for direct connection to your power amp, its built-in volume control is ideal. The latest Mk II version is an extremely impressive performer at the price, with a characteristically 'valve' sound. You can get considerably cleaner and more detailed sounding designs from the likes of Whest at fairly near the price, but this is surely the one for someone such as yourself who is obviously into the delights of the thermionic tube. We're a fan of Graham Slee products at this magazine too, but they certainly sound brighter and more 'explicit' than the Icon Audio - and obviously runs counter to your tastes.

I'd recommend investing in a Missing Link Cryo Reference interconnect (£375) at a later date, to really get the best of your phono stage/power amp combination. It's an exceptionally open and uncoloured interconnect, and good enough to

last practically any upgrade. It would also work a treat with any new CD player you buy, and in this case you've a choice of the Cyrus CD8 SE or AstinTrew AT3500. The former is super-clean and smooth, uncoloured and open, the latter big, fat, full and expansive - albeit lacking a little detail and air. In the context of your system, I'd be tempted to go for the Cyrus, as you can have too much of a good thing in terms of the euphony that valves can confer. **DP**

SHELF LIFE

I am a fan of your magazine and a long standing Arcam devotee. I had been looking to upgrade my Arcam Delta 170 CD Transport and Black Box 3 DAC when I came across your June 2008 issue reviewing Arcam's MS250 Hard Disk music server and thought this is just what I'm looking for and promptly bought one. I am very pleased with the sound quality although the access menu is not as user friendly as Apple's iPod and I still cannot get the MS250 to recognise an external disk drive to back up my music library. What has really annoyed me though is that I took your review as proof of a new product from Arcam which would be around for a good few years, as evidence of a five year guarantee and software updates from Arcam seem to confirm!

However, I visited Arcam's website recently and could not find any mention of the MS250, so I emailed them to ask why. I was surprised and saddened to be informed that the MS250 has been around for two and a half years, yet has been discontinued. I am sure the MS250 has not been on the market for more than one year and I shall be wary of buying any high end digital storage device from Arcam in the future in case it's only 'around for a short time'. Rant over..

Richard French

Eastern Electric M520 valve amplifier was an inspiring jump says Mark Armitage.



Well, I'm sorry Richard but obviously our reviews can't be regarded as a guarantee of a product's longevity - we have no seat at the table in their product planning meetings! That said, what you've just told me surprises me. The MS250 was (is) a strong product, and I don't think you should dismiss it because it's been discontinued. Contact Arcam's ever-helpful tech support to sort your hard disk issues. **DP**

DOWN THUNDER

I recently purchased a Linn Sneaky and absolutely love it, thanks for your great review! I only have a small listening room (I live in Sydney, Australia), so the internal Sneaky amp is perfect and hardly ever goes past the seventy percent mark. I feel that the Sneaky is not at its best through the Wharfedale Diamond 9.6 speakers I'm using and am looking for a significant upgrade (also a floorstander), which shouldn't be too fussy about placement. I mostly listen to the likes of Kings Of Leon, Muse and Radiohead but prefer a neutral sound. Budget is around £1,000 and it would be great if it was freely available in Australia.

**Richard Thornton
Australia**

For a small room I would suggest you consider either a B&W floorstander like the 684, a KEF iQ50 which is ideal for smaller rooms or an Usher V-604 perhaps. I believe all are available in Australia and I am sure you will like one of them. Monitor Audio are worth auditioning too, the GS20 being mightily impressive for example and again available in Oz. I won't make a choice for you because each sounds very different from the other but the engineering from these companies is as good as it gets and their sound very impressive. **NK**

This is a bit of a leftfield choice but actually Q Acoustics 1050is would work very well with the Sneaky, and are far cheaper at £300. They have a very big, warm and fulsome sound, better than many £1,000 designs in my opinion, so I wouldn't dismiss them. Indeed, their fulsome flavour would match the Linn DS's somewhat spry, crisp and dry sound superbly. Just a thought! **DP**

DING DONG!

You say thirty three and one third yields superior results to high resolution digital audio. As a very experienced hi-fi buff I cannot agree with you. In my opinion this is a misleading statement. My Sony XA5400ES SACD/CD player (£925) is connected by HDMI to an Onkyo 706 receiver (£450) used as a preamp for

**Monitor
Audio GS20
loudspeakers
- available in
Australia and
good with
Rock (no, not
Ayers Rock).**



decoding and for the rear speakers only, then with analogue interconnects from the receiver into an integrated stereo amplifier, in turn connected to my front TLS (transmission line) speakers.

Depending only on the recording quality of the disc, the surround sound is better than vinyl. The results are also superb when used with the matching Sony receiver STR-DAS400ES but only with H.A.T.S. switched ON for minimal jitter, which also gives excellent RB CD sound. Unfortunately, I found the Sony receiver to be unreliable and had to return it to a Sony Centre for a refund due to switching itself off and despite many attempts I was unable to reset it. For RB CD I have been using for the past seventeen years a highly modified Marantz CD94. My CD94 sounds very much better than the overweight latest Marantz SA-751 which I purchased and sold off after a 750 hour waste of time burn in. I noticed that the person I sold it to, put it up for sale one month later.

As far as I am aware modifications to the Marantz CD94 and Philips 960 classic players were started by Geoff Bull when he was with Covent Garden Records around 1992. My mods are far in advance of any that I know of, having the Double Crown S2 DAC chip, extra toroidal transformer, overhauled circuit boards, plug and sockets removed and hard wired, Black Gate caps, Vishay resistors, new clock, new output chips and more. I bought my CD94 second-hand out of Loot magazine for only £200 too, badly scratched. I had it resprayed and have spent approx £350 on all the mods. The belts have been replaced once. There is no chirping

noise as stated in Haden Boardman's assessment in your current issue and I find it has a very quick in-out action for the disc drawer and also quick, easy to use track access.

Finally, anyone who spends £13,000 on a turntable must have more cash than commonsense.

Gerald Bearman

Hi Gerald, I am very impressed by your experiences, but you coyly don't tell us what turntable you are using as the basis of comparison! **NK**

[Gerald replies:]

Hi Noel, I knew you would ask me this question before long. Of course I have again in my opinion the best value for money turntable ever made - the Thorens 321 and a collection of tonearms and cartridges including my own Formula V with Mayware MC7V cartridges low and high output. Other tonearms include: SME V, Linn Ittok, Rega. Cartridges are mainly Ortofon MM & MC. However I seldom play vinyl anymore.



**Marantz CD94, much better
than LP when modified says
Gerald Bearman.**



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As for valves, you know my opinion, fortunately I have very efficient central heating and do not require an additional source.

I would like to see you investigate H.A.T.S. I am awaiting a reply from Tim Vine-Lott to see if it is compatible with Pioneer PQLS - perhaps you know? I was very impressed with the Sony player receiver combination with H.A.T.S. ON; without H.A.T.S. the sound was very mediocre (unfortunately I have not been able to find out why the STR-DAS400ES receiver shut down, Sony will not reply to me. The Sony Centre where I bought the receiver has still not found time to investigate. They told me their own receiver also shut off and it took several hours of playing around to get it to function again. With the Sony combination H.A.T.S. ON even RB CD via HDMI was exceptional. I did not need to use my own stereo amplifier which is far better than any receiver that I have used.

Gerald

Hi Gerald, well each to his own I guess. I do enjoy surround-sound, but I am yet to be convinced it is any replacement to the analogue LP.

On jitter via HDMI, the problem is being tackled. Sony are not an easy company to deal with and in view of your experiences we won't be rushing to test HATS. Meridian have just announced an HDMI jitter removal gizmo, but sadly only for use within a Meridian system. I am hoping Rohde & Schwarz will offer an HDMI interface with jitter measurement for their UPV analyser shortly, so we can make accredited measurements on this phenomenon. Then we will be able to say more. **NK**

Hi Gerald - much as I am sure your observations on the CD94 are well founded, don't forget it's a super tweaked version and you're unfairly comparing it to a stock, new SA7-SI - which is a bit like a nitrous oxide prepared Jaguar E-type track car against the new XK8, i.e. not like for like! £13,000 turntables are most certainly not for lovers of highly tweaked £200 CD players - so once again, you're comparing coffee with tea. The point is that, if you have enough cash in the first place, and a suitably massive record collection, such decks can provide sonic thrills than not even your mighty CD94 can serve up! **DP**

SMALL TIME

I've recently had the good fortune to come into possession of an immaculate boxed pair of Technics SB-F1 mini monitors and I recall some time ago, whilst browsing a copy of Hi-Fi World at

a local dealer, I came across an article in which you covered these venerable speakers in one of your 'Olde Worlde' features. Could you please advise the year and month as I'd like to try get hold of a copy to find out a bit more about them and how I might get the best from them? They're currently singing on the end of my Ion Obelisk 3IX-Pak amp fed by a Yamaha CDX493, a Thorens TD320 with an Ortofon MC15 super and my venerable Pioneer TX9500 and very nice they sound too, especially with female vocals. As might reasonably be expected for their size they're occasionally a trifle light in the bass registers but can surprise every now and then with a particularly enthusiastic stab at a bass line [Elbow's excellent 'Seldom Seen Kid' springs to mind!]. An 'eclectic' combination at first glance perhaps but it appears to work very well! I'd be interested in any comments you might make.

Colin Sutcliffe

The Technics SB-F1 piece was October 2005. I concluded that they were a lovely classic micro monitor, but not the world's best all the same. Still, they do respond well to decent cable (such as Black Rhodium Tango) and Blu-Tak'ing down to the surface they're sitting on, pushed hard against a rear wall.

DP



Technics SB-F1 mini monitors, "a lovely classic micro monitor" says David.

Colin, I suggest you move on from the MC15. It was good for the price, and deadly accurate, but rather flat sounding. An Audio Technica AT-OC9 MLII is more engaging and not overly expensive as good MCs go, or you could try a Dynavector DV-X20A.

NK

IMAGINE

Lately I've been thinking of 'The Big What If'. What would happen if there ever were to be a scientific basis for the things we so enthusiastically and often opinionatedly discuss, namely sound

reproduction? What would happen if you actually could scientifically produce a perfect sound system, and do it in a way that anyone could afford it? Not just 70, 80, or 90% but so real that at least 990,000 out of a million people couldn't tell the difference at least when seated in the right spot. Exact verisimilitude. That would certainly be a day we would all more than welcome, but what do you think it would mean [a] to the audiophile hobbyists/ professionals [b] the audio industry as a whole [c] not to speak of its effects on the culture, particularly music preferences? Time to pack your bags and go home? Game over? Is it just a pipe dream or can it happen? What do you think? I welcome your insightful thoughts.

Wernher

Ha ha - nice sentiments, Wernher! First, I don't think that such a thing will ever be possible, but I think that design evolution will raise the bar in general all the same. The number of truly awful products will continue to decrease, but a side-effect of this will be an increasingly uniform sound, I suspect. This has been happening for a while now - right now, that means quite a crisp and detailed sound from modern loudspeakers, which is miles away from the big, fat, fulsome 'bombast' of the old seventies three ways. There's no doubt that the

moderns are more accurate, but I'd counter that they're not necessarily any nicer to listen to!

Anyway, if it was possible to get 99.9% of the best sound available, do you think the industry would universalise this? I don't think so! Manufacturers make bigger margins on high end stuff, so it would be unlikely that their £299 AV receivers would be sold with this magic technology and/or design inside it! Anyway, even if this did happen, I would bet my cat on strong and vociferous arguments breaking out

in magazines, on the forums and at dealers about which 'perfect' bit of kit was the most, ermm, 'perfect', such is human nature! As for the music, perhaps it would suddenly cause mastering engineers to stop fanning around with compression, as the universally available 99.9% perfect hi-fi would show everyone what a sonic disaster it already is. Sadly only a few of us - and I include most Hi-FiWorld readers in this - currently realise what a crime against music this has become. **DP**

Science may apparently understand the world around us, but it has little knowledge of human cognition, affected by formative experience and on going learning process. And then there is peer group opinion. We can measure both LP and CD pretty well, but I don't think we could declare either is best - best to accept they are different. **NK**

STAND UP SOUND

I am asking for your help for new speakers to go with my second hand purchases of a Moon Nova CD player and a Moon Si amplifier. I first heard these in one of the hi-fi shows and fell in love. At present I am using them with a pair of Dynaudio 52s, left over from a previous system. Good little speakers that they are, I still think that I can get more from this really great combo.

Unfortunately, though I have what could be called a challenging listening room, it measures 4 metres x 3 metres which then extends in to a dining room 3.5 metres x 3.5 metres with an archway in between, the current set up sits to the side but the speakers and are flanking my TV, home cinema style. I listen in both rooms with no actual listening position.

One other problem I have is that the speakers can be no further apart than 2 metres (doorways) and they can



KEF iQ50 loudspeaker can be used close to a wall and has even dispersion around a room.

be no further than 400mm from the wall - well my wife needs to go to the kitchen to make the supper. My budget is around £2,000 and musical tastes are varied from Ryan Adams to the Ramones to Madonna [the wife's]. Anyway, as you can see I really need your help in whittling down the myriad of speakers out there to reach hi-fi Nirvana.

Darren Gardener

Since you often listen away from the usual stereo sweet spot I would recommend omni-directionals, except there aren't any in common usage, within your price range anyway. This being the case, you are best advised to use a coaxial, because they have a consistent off-axis sound balance. The KEF iQ50 is designed for near wall use in a room of limited size and it is best suited to your purposes I suspect. **NK**

ONE OTHER THING

Dear David. I don't expect you will remember me but we met briefly at the Heathrow Hi-Fi show a couple of years ago when we talked about the Yamaha NS1000Ms. I am having a pair of Quad ESL57s rebuilt by One Thing Audio in Coventry and would value your opinion/advice regarding a suitable amplifier. I read your review of the new and revamped version of the Musical Fidelity A1 and wonder if this will be a good match for the ESLs. Musical Fidelity have a special offer on until 15th April. Any alternative suggestions you have will be appreciated. The other amp I am looking at is a rebuilt Leak Stereo 20
Suresh Mamtara

Hi Suresh. I always recommend valve amplifiers for electrostatic loudspeakers and the obvious choice are the Quad II-forty and II-eighty amplifiers. Try and get the latter if possible, as it's a cracker, right up with the best. The Leak Stereo 20 sounds very sweet but it doesn't have enough power for ESL57s, which are insensitive.

NK

I'd tend to echo Noel's sentiments on this, as the A1 needs sensitive, easy-load moving coil speakers to give of its best, such as Revolver RW45s or Q Acoustic 1050is (if you're cash strapped), not Quad '57s! With your brilliant One Thing Modded Quads, you're best with a decent tube amplifier - the latest Icon Audio Stereo 300 (£1,699) is a wonderful driver for these speakers, with a solid, muscular gait allied to real musicality you get from this lovely tube. If you can spend more, go for the Quads, but if you can't run to this then a well rebuilt Leak Stereo 20 will (just about) suffice providing you're not listening at high levels.

DP



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CROSS(ED) WIRES

Regarding NK's reply to Jimmy K's letter in the December 2008 issue I don't agree with his statement that electrical parameters provide no explanation why a fancy new cable that replaced his Van den Hul Royal Jades sounded worse. Instead of measuring parameters, why don't you run a signal through said cables and check response with a spectrum analyser. Take the frequencies from 10Hz all the way up to the Megahertz region and print each result on transparent paper for the two cables, look at the two results and there will be a difference, I'm sure. If you take the signals high enough in frequency you'll be able to confirm the cable maker's theory that such things as velocity factor and skin effect affect audio cables.

Here's my theory regarding NK's experience; all cables do have different electrical parameters and that's what sets them apart from each other; if you use a bright phono cartridge with overly bright speakers you'll get a less than satisfactory result, correct? Same goes for cables, it doesn't mean cable A is necessarily better than cable B, you just have to match it to the rest of the equipment (elementary my dear Watson).

One last point; if it's possible to send a man to the moon, measure DNA, then it's possible to measure the differences in audio cables. You just have to open your mind and not continue to regurgitate the same old religion from the cable manufacturers onto the pages of your magazine.

J. Wdowiak
Canada

We don't regurgitate what cable makers say; we let them say it directly. I like to let those with experience view their opinions and feel it adds breadth of view. Chord Company run interesting demos of interconnect cable quality at hi-fi shows, using headphones and I've been impressed by these, so I asked Nigel Finn for his comments in our magazine.

I am sure there will be differences between cables out at

1MHz, influenced by differing values of capacitance and inductance, but this is way outside the range of human hearing. Trying to make value judgements on a cable based on such differences is not something I would readily do unless someone could explain to me a plausible mechanism through which any such differences could be heard. **NK**

LOST EMPIRE

Dear Adam. I enjoy your column every month in Hi-Fi World. Like you I'm a vintage addict. There was an American turntable I remember in a hi-fi magazine in the early seventies, made by Empire, who also produced cartridges as well, marketed by the Rank Organisation. The deck was called The Empire Troubadour. It was a superb looking beast with a heavy walnut plinth and gold coloured platter and silvered arm. I don't remember what one cost at that time, but one helluva lot of money and it would have been high end.

In a technical sense I don't know how good it was, even in that time. If it's not going too far back for you, I'd love to see you get hold of one and test it. I've never even seen one advertised secondhand (there's a challenge for you). I love the magazine, and have been a reader since issue one. Hope to hear from you on this one.

Billy Gunn

Billy, it's always good to hear from a fellow enthusiast and, yes, I know the Empire decks well. There was actually a range of them, starting with the 208 in the late 1950s. As you have seen, they were very sturdily constructed and were also belt drive, which was something of a rarity in those days.

The 208 was followed by the 298, both of which were sold without arms, plus the 398 which came pre-fitted with an Empire 980 arm as standard.

The 498 and 598 followed, which were basically evolutions of the model and I have also heard rumours of a 698, although I don't know much about his one. As far as I know, the 208 and 598 are the most common units, although they are still fairly rare. The 208 is mostly found as a motor unit only and, interestingly, Atma-Sphere in the U.S. view these so highly that they offer a complete refurbishment and rebuild service to create what is effectively a new turntable; details here - <http://www.atma-sphere.com/products/208.html> (\$3,700 - ouch!).

The 598 is an integrated player with arm that features a novel, light-operated auto stop system and apparently can turn in a very impressive performance given the constraints of the arm, which is good, but has a high effective mass. Regarding availability, as a regular surfer of the forum at www.audiokarma.org which is based in the USA, it appears that they were more common over the other side of the Atlantic than in Blighty and I can assure you that, like you, I have been keeping my eye out for one for a number of years now. Rest assured that, if and when I do find one, I will be sharing the news with Hi-Fi World readers! **AS**

I have a sinking feeling that he's very sincere about that last point... **DP**



Empire Troubadour turntable, a rarity from the USA. Adam Smith relates its history (oh - we are good at this!)

NUTS

Ever since I mentioned to a hi-fi nut friend of mine that I might need to replace various parts of my system I have been swamped with links to hi-fi items on eBay which reflect varying levels of sanity. While I value my friend's advice I have to bear in mind that this chap has enough time on his hands to disassemble almost every pair of speakers he buys, apply upgrades ranging from installing new drive units to tweaks with a jigsaw and then send me photos of the resultant mutant boom box [he's not called Adam Smith, perchance? Ed.] I look back with much nostalgia at sharing a workshop with him in Clapham years ago and enjoying applying similar improvements to my own kit, leading, more often than not, to another long look through that morning's LOOT to find a replacement!

These days, however, there don't seem to be enough hours in the day to do my day job, let alone play with the internals of hi-fi. So this is where I find myself: with a mish-mash of second-hand components and a sound that I'm not happy with and a need for a guiding hand to get me on the straight and narrow. If you are able to advise me, please bear in mind that I would love to stay with second-hand kit going forward as I can't resist a bargain.

My current system consists Chario HYPER 1000 speakers on custom lead filled stands, a Boulder 102AE power amp (balanced output only), Musical Fidelity X-PRE v3 and a Primare D20 CD player. Cables are QED silver anniversary bi-wire (although the external crossovers are only wired for a single set of terminals so I've reversed the cables and taken the spare wires off to a set of connector blocks at the amp end - not ideal I know); Van den hul hybrid interconnects (not sure which model) between pre and CD and some home made ones using decent-ish cable (RCA to XLR) between pre and power. I listen to a mix of everything from pop to classical - Elbow's latest is a favourite.

I am pretty sure that the Boulder is being let down by what's around it (I recently swapped it out for an Audio Analogue Puccini and then an Arcam FMJ integrated and both were a major step backwards in sound).

What I am looking to do is take a step up in general and get some more realism in the musical presentation - bigger sound stage, more detail and some presence especially at low volumes. My first thought was that I should look at the speakers - I'm not in a huge room, being a standard Victorian sitting room of 15 x 10 and the speakers firing lengthways from the bay window (with some heavy curtains behind) so if I start with speakers then

they couldn't be giants which might count out some Spendor S8es although there are plenty kicking around second-hand so I am tempted.

Anyway, I am getting ahead of myself by assuming it's the speakers I need to start with. Maybe I should replace the X-PRE with the World Audio unit or throw the CD player in the bin? This is where you chaps need to step in with some words of wisdom (that don't

because 2V output from the Cyrus coupled with 26dB gain of the Boulder surpasses the quoted output of the 102AE. You will have to turn volume up a long way though. A good floorstander to consider is the Dali Lektor 6 or, if you want to splash out perhaps a Mentor 6. Also, Monitor Audio will launch a PL200 soon and this could be worth hearing.

In principle at least the recording



Get a Cyrus CD-8 SE CD player and Chord interconnects to drive a Boulder amplifier, says Noel.

dent my bank balance by more than £2,000)

On a separate matter, I was interested to read Andrew McBride's letter from the March issue. I assume the PC/MAC you stipulate could be substituted for some kind of NAS device such as Buffalo and Netgear make which are mini servers based on Linux?

Also, the talk in your pages with regards computer audio has largely focused on the lossless format used and the reproduction of the sound, quality of the DAC etc. What has been playing on my mind are questions of transport quality when encoding. If we assume that I have a wonderful DAC through to speakers then how much if at all would I be hobbling the sound by having created all my FLAC files on a MAC laptop using the internal CD drive?

I realise that the non-realtime nature of encoding music files means more thorough error correction can be performed but if a good quality transport (as proved by your recent reviews of the new Cyrus CD range) has a profound effect on the signal that gets through to the DAC then does this not apply to my FLAC files which are I suppose just a snapshot of what's been offered up by my MAC CD drive?

Will Brown

My short suggestion here is you get a Cyrus CD-8 SE CD player and a decent pair of Chord Co interconnects. This can then drive the Boulder direct through a passive preamp like Creek's OBH-22,

process can add jitter to a digital signal that can be removed by re-clocking at the end of the signal chain. Meridian's new HD261 HDMI processing unit is an example of this, de-jittering the digital audio stream by using a FIFO buffer to aid re-clocking. So recording audio on a computer isn't a great idea, as you suspect, unless it can be cleaned up later. **NK**

BADLY HOLED

Adam Smith's comment that a loudspeaker with a hole or two in the box cannot start and stop on a sixpence in his ADAM Audio HM3 speaker review brings to mind a similar internet discussion I had with Stereophile's John Marks, who had just auditioned a closed box speaker, where John was extolling the superiority of closed boxes and I took on the reflex side. But since that time I had a chance to look further into the subject.

First let me describe my speaker which I used in my further investigation. It is a two box speaker. The mid/tweeter section is the SEAS Froy 3 design which can be seen on the SEAS internet site. It's a D'Appolito three way with two 5 inch magnesium cones and a soft dome tweeter. The woofer is a polypropylene 18inch device, the same driver used in the late 90s Snell A speaker, in a five-plus cubic foot box. The crossover is a passive 4th order Linkwitz/Riley at about 85 Hz (the driver has so much inductance that's about as high as you can go). Let me add that both the box

and crossover were custom designed for this use by Murray Zeligman the designer of the Froy 3.

An especially interesting aspect of the box was that it was designed to be used both as a reflex or closed box. The reflex design was a 4th order Bessel Function (minimum time delay) with a -3dB of 23Hz and the closed box was a second order Bessel function with a -3dB of 33Hz. Murray designed the system this way in case the reflex format overloaded the room the speaker was in, even though he preferred the reflex loading. The speaker was awesome with superb bass definition, way better than almost every example of reflex loading I had previously heard.

So I questioned John Marks contention of the great superiority of closed boxes. I guess at the end we implicitly agreed to disagree. But a few years later I recalled the alternate closed box loading for my speaker and I heavily stuffed the port with foam. And there was no question that the closed format was tighter and more detailed. This was particularly apparent in the ease in listening to the subtle decay tones of instruments and also in the increased impact of hard tones. Piano was especially more real.

I must admit it wasn't all one sided. The closed loading was as expected leaner and interestingly there was a strange sense of aliveness missing. I suspected this was a coloration caused by gentle ringing in the reflex version but it was nice.

I eventually settled on the closed format. If Adam's position is based on the hole in his Ferrograph speaker that's a mistake. The Ferrograph may have a hole but its not open as the hole is heavily damped with long hair wool. The Ferrograph loading is related to your own WD25A loading which as it only shows one bass resonance peak is akin to a closed box.

I know this little story doesn't settle this debate. But I hope it sheds a bit more light on the subject.

Allen Edelstein
USA

We are so pleased that you have found the joys of Aperiodic loading, as employed by the World Designs WD25 speakers, by your own experimentation.

You can't take any reflex speaker and 'stuff the port with foam' as the drive unit/cabinet design has to be arranged to suit this type of loading. The Froy is an unusual design in the first place as the box is tuned much lower than the 'optimum' for maximum bass output. I suspect this is because the standard reflex design would push out too much

bass with the twin bass units, so the sound was made leaner by deliberately mis-tuning the box. This has other benefits in that the output of the port, at 23Hz, is now below the fundamental frequencies of most instruments, so is only 'heard' occasionally, and this means that the bass definition approximates to that of a closed box for the critical 60-100Hz region. As a result this design also lends itself to Aperiodic loading without too much loss of bass output, especially now you are reinforcing the bass below 85Hz with your subwoofer, which is probably the best way of using the Froy design in my opinion.

PETER COMEAU

Er, Allen, a 5cu ft box with an 18in bass unit stuffed in it is a bit left-field, and not quite what I would choose to use as a demonstrator of principle.

Manufacturers like KEF and B&W commonly supply bungs for their reflex loudspeakers and generally there's less bass power but improved bass definition when the port is partially blocked. As Peter succinctly notes though, this is a somewhat ad hoc thing to do.

I'm reminded of that lovely expression used by loudspeaker engineers that the reflex port "integrates in the far field". This delightfully obtuse phrase says in effect, we don't know how it does what it does, but it does it. It isn't easy to predict how out-of-phase port output integrates into the forward sound from the bass cone within the closed box a room represents.

If you have ever steered an open bass dipole in a room you will know how bass quality can change quite dramatically with orientation. I suspect the reflex sound is as much attributable to this little understood phenomenon as any other. Only a computer based acoustics programme could sort this one out I suspect. **NK**

I've had two major 'loudspeaker loves of my life', the Linn Kan I and Yamaha NS1000M. Now, I realise neither are

typical, but both - for some reason - caused me to go the extra mile to build a system around them, whereas so many other speakers I've had I can take or leave (well, I left them)! What's the connection between a miniature Scottish two-way with Bextrene mid/bass and a Japanese giant three way with Beryllium? Not much, superficially, but the one thing I've felt was so right from the start was the bass - and guess what, they're both closed box.

Having spent so much of my life without the sound of bass ports chuffing in time to the music, and been denied the dubious pleasure of hearing bits of the leading edge (or decay) of the bass note whoosh around not quite in time with the music, I find it strange to listen to a ported speaker now. Funny how your ears become so attuned to their faults when you don't hear them so often!

As such, I must confess I regard bass ports as one compromise too far in a loudspeaker. I know, I know, they can be done really well (but usually aren't) and they're not the universal evil I might be suggesting,



World Designs WD25, with a bass port tuned low to 23Hz.

but I still don't like 'em all the same. What you can be sure is that they make speakers more efficient, easier to drive and (apparently) strong in the bass, and that's helpful with lower powered amps or larger sized rooms. And if they are done properly then they don't draw too much attention to their miserable existence - kind of like a diesel engine in a passenger car. So I can see a 'need' for them, sort of! **DP**

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Five Live!

Adam Smith takes a listen to ADAM Audio's visceral sounding A5 active mini monitors...

Over the last few years, the basic way in which a hi-fi system can be structured has changed somewhat, with various new options open to the listener. It wasn't so long ago that the progression from one-box system, be it a nineteen seventies music centre or a nineteen eighties midi system, meant trading up for the succession of boxes that inevitably meant source-amplifier-loudspeakers. More recently however, the advent of

digital music servers, the options of wirelessly beaming music around the home and the rise in network music players has meant that this previous hierarchy is beginning to be deviated from somewhat. Particularly in the case of home music networks, having a receiver in each room in which it is desired to play music means that suitable amplification and loudspeakers are all that is required. However, the networked player is a neat solution in itself, and so why shouldn't we simplify and tidy up the actual chain

to the transducer itself a bit more? The obvious answer, of course, is to go active.

Active loudspeakers still remain something of an outsider in home reproduction terms, however. At the bottom end of the market there are many combined amplifier/loudspeaker units, most of which incorporate the obligatory iPod dock, and some of which are pretty ear-wounding. Conversely, in the exotica category, we have the likes of the Meridian DSP-8000s, Bang & Olufsen Beolab



"small and neat yet expansive and dynamic, the A5s are a fine showcase for affordable active speaker design..."

5s and ADAM's Tensor range of active loudspeakers, all offering impressive engineering, serious sound quality and price tags firmly out of the reach of most of us! What is needed, it seems to me, is a modern alternative to the likes of the good old Wharfedale Active Diamonds or Goodmans Maxamps; namely affordable, high quality active loudspeakers that will sit happily either side of a computer but that are also capable of cutting it in a 'grown up' hi-fi system. Well, ADAM Audio reckon they have the answer.

The A5 'Active Studio Multimedia Monitor' is just such a device, carrying a goodly proportion of the technology found in ADAM's larger models, but in a compact enclosure. This means a 5.5in (147mm) Carbon Fibre and Rohacell 'sandwich' bass driver allied to an ART tweeter operating on the folded diaphragm method originally

invented by Dr. Oskar Heil for his Air Motion Transformer, each driven by its own 25 Watt amplifier and active crossover. Inputs are available through balanced XLR and unbalanced phono connections and additional 'Stereo link' sockets allow the speakers to be linked together – each loudspeaker has its own volume control but, when linked, one speaker can act as the master to control the volume of both.

Also round the back are to be found controls for tweaking the response of the loudspeakers for optimum performance. One allows the bass level below 150Hz to be boosted or cut by up to 6dB, a second effectively acts as a +/-4dB volume control for the tweeter's output level across its entire range above 4kHz, and the last lifts or drops treble output above 6kHz by up to +/-6dB, measured at 15kHz. All are useful for fine-tuning the

A5s according to their positioning in order to obtain the very best from them. Finally, ADAM sell table bases for the A5s that support them correctly and tilt them upwards by a few degrees, and also make a matching subwoofer, the Sub7, for filling in the very bottom end.

The A5s measure a diminutive 285x172x200mm (HxWxD) but weigh in at a sturdy 5kg. They are available in both high gloss black and white finishes and both are absolutely immaculate. Being something of an eighties fetishist I would normally plump for the black in stylistic terms, but the female contingent of the Smith household gave the white the thumbs-up, and the cat sniffed round them and then started purring, so clearly I was outvoted [so the cat wears the trousers in the Smith household then? Ed].



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SOUND QUALITY

As an exponent of 'the bigger the better' school of loudspeaker design, I often find that evaluating a small speaker can be a nerve-racking event; consequently I was rather shocked when firing up the A5s. I am tempted to throw in some anecdote at this point about someone else wandering into my listening room and asking where the subwoofer was but, frankly, I had to pause for a moment to make sure I hadn't switched one on inadvertently! To state that these loudspeakers offer a scale that belies their tiny dimensions would be like saying that publisher Noel quite likes valves, or that the new 227mph Brabus-engined Mercedes CLS isn't exactly sluggish. I sat astounded as the A5s sang their little hearts out from atop my Atacama Nexus 6 stands and could only marvel at the way in which Beth Rowley's vocals sat before me with an incredible scale – five inch drivers in cabinets the size of a few hardback books simply don't do this sort of thing normally.

That main drive unit was clearly responsible for the sound I was hearing, and the way in which it handled bass lines was superb. Yes, those tiny cabinets meant that my floorboards weren't exactly being rattled, but even when fed with some truly hardcore low end action, the A5s never faltered. Jah Wobble's 'The Sun does Rise' on twelve inch single can make the gruntest of loudspeakers turn into a wobbly mess, but the ADAMs positively lapped it up. Granted it was clear that they weren't going to shake ornaments off my shelves but, at the same time, neither did they completely gloss over the powerful bass line underpinning this song. They made it clear that something subterranean was there but seemed to be saying, "we can't manage this as we're only small – sorry – but we're going to jolly well have a rollicking time with the rest of it" which, indeed they did.

What surprised me even more was the volume they were able to generate – the cabinets are small and 50 Watts per speaker isn't much, but the A5s went plenty loud enough and only betrayed their running out of steam by a slight midband compression – there was no sign of distortion at quite neighbour-unfriendly levels.

Across the mid and top, ADAM's ART tweeter once again proved its prowess by pulling every single detail out of the back of the recordings I played. As things progressed however, I realised that this unit is not quite as

forgiving as the X-ART unit used in the higher range Tensor models and noted that the A5s could become a little uncomfortably strident at times. Despite allowing them a good few days of continuous use to run in, it became clear that this was not going to go away. Consequently, it took a few steps to put this right. Firstly I corrected my schoolboy error of using the cables supplied with the loudspeakers, and substituted them for a 2m set of MIT AVT-S1 interconnects which polished things up considerably, and then I took a good time to set the frequency adjustment settings on the rear of the loudspeakers. I left the bass control at its centre setting, as this was fine, but judicious adjustment of the two treble controls proved fruitful. Ultimately I found that the tweeter level control was best reduced by around 1.5dB and the high frequency lift raised by around 1dB – this exacerbated the slight forwardness noted, but added in a touch of top end crispness.

The results of this tweaking were very impressive. The A5s are sprightly, fast and crisp at all times, making some songs sound like they have been speeded up slightly, such is their tautness of rhythm and basic musicality. Equally, however, they can wind back and reproduce more thoughtful material with a dexterity, poise and atmosphere that is seldom found at this price point. The Fleet Foxes' 'White Winter Hymnal' positively filled the front of my listening room and 'I Can't Hide' from Jennifer Warnes' 'The Hunter' CD was laid out in a way that reminded me of my time with the A5's much bigger brothers, the Tensor Gammas. Once again, Jennifer was locked centre-stage and positioning the players around her was no chore at all. Equally, Jenny Jones' vocals on 'Brighton Pier' were astoundingly vivid and natural, and every intake of breath and swallow could be heard as she spoke the words to the song, but it was

clear that there were limitations to the way in which this track had been recorded. Ultimately, the A5s never stray far from their monitor heritage and can occasionally sound a little strident with poor material, but the key words here are 'poor material' – if the recording is less than good, the A5s won't draw attention to its deficiencies unduly, but equally they will not gloss over them.

CONCLUSION

The ADAM A5s are superb loudspeakers for the price. They are compact, versatile and can be used with any source from an iPod to a full-blown hi-fi system, and will offer the same sort of confident and dynamic performance to either. Take time to set the frequency adjustments carefully, feed them with a quality source and wire them up with good cables and you too could be looking for a subwoofer that isn't there!

REFERENCE SYSTEM

- Garrard 301 turntable
- Alphason HR-100S arm (Cardas wired)
- Audio Technica AT-OC9MLII cartridge
- Anatek MC1 phono stage
- Marantz CD94 CD player
- Naim Supernait amplifier (as a preamp)

VERDICT ●●●●●

Small and neat yet expansive and dynamic, the A5s are a fine showcase for affordable active loudspeaker design.

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- FOR**
- superb dynamics
 - excellent low end detail
 - impressive scale
 - versatile adjustments

- AGAINST**
- slightly strident at times

MEASURED PERFORMANCE

The Adam A5 is a small active design, needing mains power. It has three frequency response adjustments: bass equalisation, room equalisation and treble equalisation. With all set flat the A5 measures very flat, our stepped and gated sine wave response analysis shows. There's a small 'presence' dip around 3kHz that will slightly soften the delivery, but its subjective impact will be slight. Above 3kHz the ribbon tweeter gives smooth output that will likely translate into natural sounding treble.

A pink noise response shows that in a room bass peaks a little around 80Hz, but it is quite a narrow band effect and may add just a little to bass 'speed'. The port operates over a narrow band, being tuned to a high 70Hz, so Adam have not tried to force the A5 to go lower than it would naturally. This is reflected in low bass distortion figures too, below 2% above 30Hz. Above 100Hz distortion sank to 0.2% or less, a good result.

The bass adjuster introduces progressive lift or cut below 1kHz, peaking by +6dB below 100Hz. This will provide useful wall mounting compensation or a little bass boost to improve warmth and body. Likewise, treble lift looks potentially useful, producing plateau lift of +5dB maximum above 2kHz. The 6kHz room adjustment mimics the treble adjuster, so what it is meant to achieve isn't obvious to me.

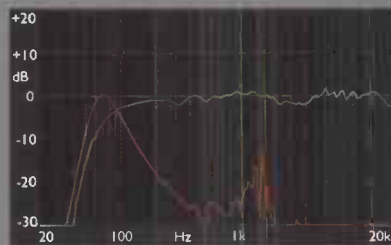
Sensitivity at max volume was high, just 200mV needed to generate

90dB (loud) one metre away.

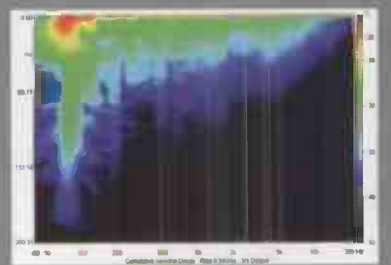
The A5's long term spectral decay behaviour was unblemished, except at 80Hz. So there may be a slight bass overhang, but the midband and treble look very clean and uncoloured.

The A5 is a well engineered mini monitor that has a lot of built in adjustment to suit both taste and room positioning. It should provide fine treble and an accurate balance, plus fast bass. N

FREQUENCY RESPONSE



Green - driver output
 Red - port output
SPECTRAL DECAY over 200ms



All Together Now

Recognising the growing demand for "integrated solutions", as they put it, Naim's Uniti brings high quality CD playback, DAB and FM radio, network music streaming and amplification together into one box. David Price asks if it's one for all, or all for one?

Well, if you'd been cryogenically frozen for twenty five years, the shock of hearing that Naim had just released a product like Uniti would surely awake you. Lest we forget, this is the company that - back in the eighties - didn't believe in digital, sold a line of specialised pre and power amplifiers and had just proudly unveiled its unipivot tonearm to a waiting world...

Such is life, and such are the changes in the life style (doh - I've said it!) of Naim customers and hi-fi aficionados in general, that there's nothing to be ashamed of making products like the Uniti anymore. Gone are the days when admitting your hi-fi company was working on a remote controlled volume knob would compromise your integrity and alienate your customer base. Now, the hi-fi world has caught up with the rest of the human race and no longer makes a virtue out of dogged inconvenience and willful exclusivity.

The Uniti - as its name suggests - brings together a whole host of music sources. You've got your 'legacy' format (CD), retro radio (FM), rubbish radio (DAB), interesting radio (internet radio) and computer audio (Network Attached Storage from a standalone computer hard drive). Oh, and it's got a built in DAC (with five 24/96 capable inputs), two analogue inputs, a bespoke phono input (for an optional Naim phono stage, complete with phantom power), and iPod connectivity, and a USB input for memory stick or MP3 player, and one of those quaint old 3.5mm front panel inputs for your Walkman, or suchlike. I don't think I've forgotten anything, but the Uniti has enough sockets to make your average two grand Denon AV receiver look like a 1985 Naim Nait, so I could be wrong...

This is all terribly clever, but actually the most interesting thing for me is the fact that the Uniti is

the first 'network' music player Naim have ever made. Whereas Linn made a big song and dance about this being the future of music (i.e. us all playing FLAC files from our computer's hard drive or external NAS device), Naim have almost smuggled network functionality under the radar - it's as if it's item seventeen on the press release, just below the quoted power consumption. Actually, I think this is very important for music player buyers in general nowadays, and also historically significant for Naim Audio in the great scheme of things. It also suggests that there might be, ermm, other Naim network music players coming soon - minus the Uniti's other associated paraphernalia, maybe, perhaps...

Naim are calling this an "audio source hub". The trouble is, me being me, when I think of "hubs" I think of hubcaps, of the Ford Cortina variety - the sort you used to find by the side of the A34 in the nineteen eighties, minus retaining clips. So I think it's better to think of the Uniti as a high quality twenty first century music centre - because that's exactly what it is.

Now then, off the record, unattributable sources - absolutely none of whom are in any way related to the job of Naim PR man - told me that the Uniti is - at its core - a Nait 5i amplifier with CD5 CD player in one box. This isn't a bad start in life, as regular readers will be aware. Onto that of course, is grafted an enormous amount of digital switching, DACs, radio and network music gubbins, but the point remains that the Uniti has a good start in life.

The swing drawer and transport suspension are as used in the CDX2, as is the magnetic disc clamp and Philips-sourced VAM1202/12 transport. Indeed, Naim says the Uniti is the first machine to use the new, more rigid, beam-strength mounting of the swing drawer on the front panel supported by the base. The radio module uses a proper

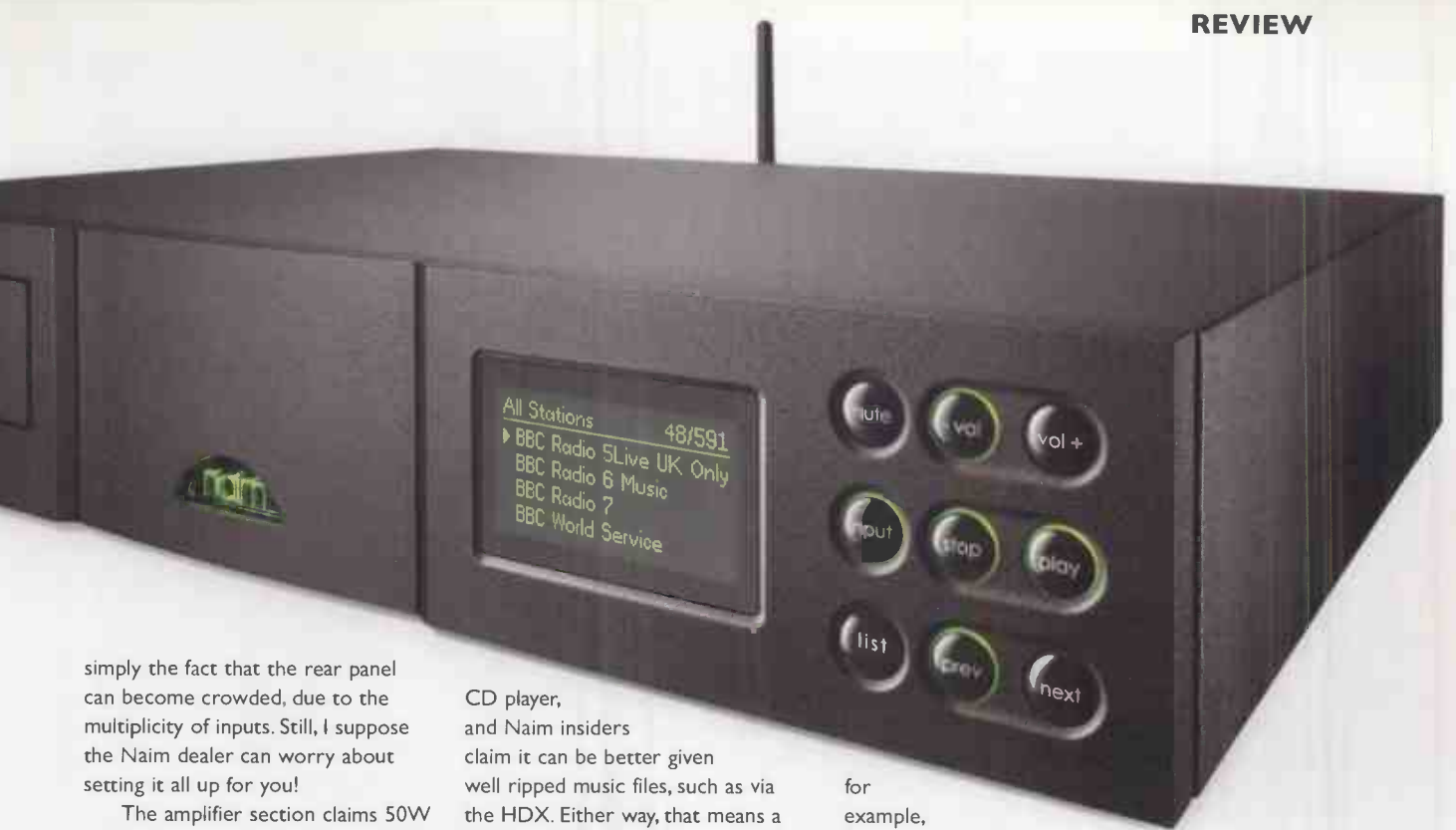
(not software) FM section, and the latest DAB chipset. It is beautifully integrated, because the Uniti also does Internet Radio, and you can set the presets regardless of source - so preset one for example can be FM, DAB or Internet Radio.

Then there's the optional n-Link, which is Naim's custom iPod connector, which goes straight into the bottom of any modern iPod and lets the user play or charge their little music portable via the Uniti - with full control and display of music content via the Naim Uniti front panel OLED display. It works very well indeed - although I for one would love a little dock with a glowing green Naim logo to complete the picture, and I suspect every Naim customer of the last three decades would probably agree too.

The music streaming works seamlessly, delivering easy access to the files held on your Network Attached Storage device (via Wi-Fi or Ethernet), with simple navigation via front button controls or the supplied remote which itself is a quality item. You'll need a uPnP music player installed on your computer, but Naim (or your dealer) can advise on this and at the time of writing the company is also coming up with a list of recommended NAS devices. Right now, most of them are infernally noisy and shouldn't be kept in the same room that you listen in; under the stair cupboard is best, I'd say. It supports a vast number of music files, including WMA, MP3, ACC, Apple Lossless (from an iPod), WAV, FLAC and OGG Vorbis.

Indeed, the unit is very easy to use in general; those backlit front panel buttons are a joy, and the compact (87x432x314mm) non-resonant, non-magnetic aluminium casework confers a sense of solidity. The new green OLED display is lovely; better I would suggest than that of the HDX, although it's not graphics-enabled or multicoloured. The main problem with the Uniti is





simply the fact that the rear panel can become crowded, due to the multiplicity of inputs. Still, I suppose the Naim dealer can worry about setting it all up for you!

The amplifier section claims 50W into 8 Ohms or 90W into half that, and can be bolstered by the addition of a separate power amp. There is bass management for use with sub-sat systems and a subwoofer output (should you crave such a thing), while the large toroidal transformer (330VA) with six secondary windings is plenty big enough to take the Uniti to high volume levels without any signs of stress.

SOUND QUALITY

Considering its £1,995 retail price and the vast amount of things it does, it would be a miracle if the Uniti sounded like a high end Naim separates system, so don't be surprised to learn that it doesn't. Instead, it sounds like a high end Naim system that's shrunk in the wash, so to speak, which means it has much of the musicality, dynamic articulation and general *joie de vivre*, but not the scale, punch and drama. The result is actually very listenable, and just about as much fun as you'll get from any all-in-one system ever devised. During my short time with the Uniti, it's fair to say I really enjoyed its general demeanour and didn't sit there wishing it was a little bit better in this respect or that. Rather, it cuts to the musical chase, and lets you focus on what's really important.

The jury is still out on whether the CD player sounds better than streaming from a NAS drive (WAV or FLAC). In truth I guess the latter's sound depends on the quality of the rip to the hard drive, so it's tricky to make generalisations. However, I would certainly say that streamed music is on a par with the integral

CD player, and Naim insiders claim it can be better given well ripped music files, such as via the HDX. Either way, that means a very detailed and tuneful sound, with lots of subtlety and the usual 'inter-transient' silences (a phrase which tends to crop up when reviewing Naim gear).

Tonally, the Uniti is very smooth; not in a warm, coloured way that you'd get from some valve amplifiers, but it's still fairly creamy in the manner of modern Naim transistor amps. There's quite a dark and deep feel to the music, and even through my overly revealing Yamaha NS1000Ms the Uniti remained even and subtle without shouting - not something one could say about Naim amps of two decades ago! Despite its smooth demeanour, there was a lot of detail and speed. For example, I found Supertramp's 'Oh Darling' to be very propulsive on CD, the Uniti pushing the song along, making it consummately good fun to listen to.

Cymbals sparkled on 4hero's 'Morning Child', while the Naim rendered the strings without grain and in a fatigue-free way, whilst the cor anglais resounded around the room with air and breadth. Female vocals were very tactile, and carried with Naim's usual superb timing. Best of all was the way everything in the song seemed to gel with everything else - giving an 'all of a piece' performance.

In absolute terms the Uniti is a little bass-light, lacking the deep, firm, insistent nature of a NAP250 power amplifier

for example, and there's a dash of opaqueness to cymbals; they're nicely resolved but lack that last *nth* degree of air and space. But still it was the brilliant way they timed, and joined up with everything else in the mix, that made this little box so enjoyable. The midband is clear and open, with strong centre imaging and an 'out of the box' sound, but can be a tad mono coloured at times - it failed to spotlight the dramatic differences in the sonic signature of the Stax studio in Isaac Hayes's 'Cafe Regios' compared to the dryness of the sound on Fleetwood Mac's 'Sara'.

CONCLUSION

Whilst the Uniti isn't the world's greatest hi-fi, it's certainly one of the best sounding one-boxers I've ever come across, and surprisingly one of the most versatile and easy to use. This is a very impressive product from Naim, one which I feel is ideal for those wishing to 'downsize' their high quality separates collection or simply to add a really effective 'music box' to a spare room or study. That it does so much so well is a testament to how the company has changed for the better - it's one thing to design cracking no-compromise fare, and another entirely to do a crossover 'do it all' product such as this with such *elan*, but Naim has nailed it.



VERDICT ●●●●●
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Designing Loudspeakers

WD25T EX – The next step by Peter Comeau

I am often asked 'can you send me a crossover for these drive units' and the correspondent goes on to name some mish-mash of drivers that they've picked up from eBay and plonked in a cabinet.

Of course I have to point out that crossover design is far, far more complex than just calculating theoretical component values for a standard second or third order crossover.

Clearly the role of the crossover is still not fully understood amongst many DIY speaker builders who put more emphasis on the drive units than anything else. In fact I've spent half my life (and am about to spend another third of it the same way) making even fairly non-descript drivers sound stunning simply by making sure the crossover gets the best out of them.

Careful crossover design can make a bass-midrange unit with characteristics that make it sound 'ard and 'orrible into something highly revealing and natural sounding. Good choice of crossover slope can make a treble unit which sounds ear piercingly jarring into something that has a silky presence that is a delight to the ear.

That is not to say that crossovers can solve all ills. It certainly helps to have good sounding drive units to start with. In fact the better the drivers the easier it is to design a good crossover that creates a stunningly revealing and natural sounding speaker.

Which is where the concept for WD25 EX came from. The past two articles in this series have concentrated on the stand mount WD25A EX and now it's time to meld the crossover work into the WD25T EX. In short, take a 26cm bass midrange unit that produces better midrange

qualities than it has any right to, drop it into an enclosure that yields extended, tight and clean bass performance in any room, and marry it to a treble unit par excellence, hence the 'EX' monicker.

The goal – to make a speaker which practically disappears when you are listening to it – a speaker which is so revealing that you can hear right through to the performance with, apparently, nothing in the way.

It's a tough goal. In fact each version of WD25T has achieved it to a remarkably high level. In the EX I wanted to take the goal one step closer to perfection.

CROSSOVER WIZARDRY

So, how is it done? Is there some sort of crossover wizardry required? Does there need to be some unique circuit that magically processes the audio signal before it reaches the drive units?

Thankfully, no. We just have to aim for certain technical parameters and then start the process of listening and refining. The engineering requirements are straight forward. We require an optimally flat frequency response AND power response in room, perfect phase integration between the drive units through the crossover region, and an off-axis character that matches the on-axis performance.

The latter is often overlooked. Too many speakers are designed solely to give a ruler flat on-axis response. These types of speakers become both room and seating position sensitive. They work providing the listener is seated on the measurement axis and the speakers are far from walls, floor and ceiling so the off-axis reflections are considerably delayed.

These types of speakers don't work for Mr Average. Usually the



room is too small to place the speakers well away from the side walls, and the rest of the family wants to enjoy the music as well as the listener in the 'stereo seat'.

In addition these types of speakers are often genre dependant. They may suit classical music but not jazz or rock. They may sound great on 'audiophile' recordings but terrible on 'ordinary' discs. It doesn't take much to show up the imbalances in the real-world performance.

However if a speaker is designed with careful analysis of the off-axis, both horizontal and vertical, responses and with consideration of the total power response in-room, then the speaker should sound natural and well balanced wherever it is placed. Also listeners are free to sit where they like – they may not receive a holographic stereo image but they should still enjoy a lifelike image even when sitting well off-axis.

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Similarly the speaker is not music dependant. Certainly it may be revealing and clean and detailed to the point where poor recordings sound only half decent and good recordings sound great, but in both cases the music should shine through. And there has to be something inherently right with a speaker that is capable of playing all genres of music without favour.

One more technical aspect is worth consideration. The impedance of the final speaker should not present a difficult load to the amplifier. To have an impedance graph which oscillates wildly between peaks and troughs throughout the frequency range usually means that the speaker becomes amplifier dependant. In other words it may work brilliantly with some amplifiers but not with others.

There's no clear cut differentiation between good and bad amplifiers here. Not many amplifier designers understand that the speaker is a voltage generator and current distortion device. Some do have cognisance that a speaker load is far more complex than an 8 Ohm or 4 Ohm resistance. In any case you stand a better chance of the design suiting a wide range of amplifiers if the speaker doesn't give the amplifier a hard time.

NEUTRALITY AND REALISM

There's another school of thought that claims that a tonally neutral speaker, one with a flat response, will make the performance sound real. That 'ain't necessarily so, as the song goes. Our measurements are all based on sinusoidal analysis, even when the test signal is a pulse. It's the only way to see, graphically, what is going on.

However music is rarely based around steady-state waveforms. Yes, you can analyse the musical waveform into a series of sine waves at any instant, but the human appreciation of music is based upon what happens over a period of time. In addition our brain is pre-programmed to respond to transient information. That's why the most interesting and arresting music has sudden starts and stops, silences broken by loud interjections.

Any musician will tell you that timing is the essence of making music come alive, that the silence between the notes is as important as the striking of the note. And, of course, the 'note' is highly complex in its beginning, its decay and its harmonic structure.

These are all aspects which are nigh on impossible to resolve by pure technical analysis. As design engineers

what we can do is find a design system which works, usually by trial and error, and apply that system to any new design. But to reach the goal outlined above has to be done by musical analysis, in other words a lot of listening and fine tuning.

Having just finished the WD25T EX crossover I was demonstrating it to my colleagues at World Designs towers. Our chief engineer was sitting in the preferred 'stereo seat'. I was sitting at the side of the room, very close to one of the speakers, around 60 degrees off axis.

I put on a simple recording by the Wailing Jennys that starts off with acoustic percussion and female vocal. At the point where the vocalist starts to sing we looked at each other – she was palpably there, in the room, a vocal presence that almost seemed to have a physical body. You couldn't see it, but you could hear it. The point is that she was there, in the room, even to me sitting way, way off axis. That's what I call real.

THERE'S MORE THAN ONE WAY...

The first step was to apply what I'd learnt with the WD25A EX to the WD25T with the addition of the SEAS Millenium treble unit. You might think that plugging the same crossover in would yield similar results. But it doesn't. The reason is that the WD25T has a larger baffle area and a baffle that reaches right down to the ground.

This physical change alters the way power is radiated from the drive units into the room. In addition the larger, sealed, enclosure of the WD25T has a very different bass performance to the smaller, aperiodic ported, WD25A. So the overall balance of the speaker is changed.

There's more than one way to configure a crossover to achieve similar technical performance but with a very different acoustic result. The crossover frequency remains at 2kHz, this being dictated by the acoustic roll-off of the 26cm bass midrange unit, but more energy is now imparted to the treble output by raising the coil in the electrical 2nd order crossover to 0.42mH.

I have shown before that the best acoustic performance is given where there is a mild 1 or 2dB depression through the crossover region for the on-axis response. This doesn't necessarily translate to a loss of acoustic power in this area, however, due to the wider dispersion, and therefore greater radiating power, of

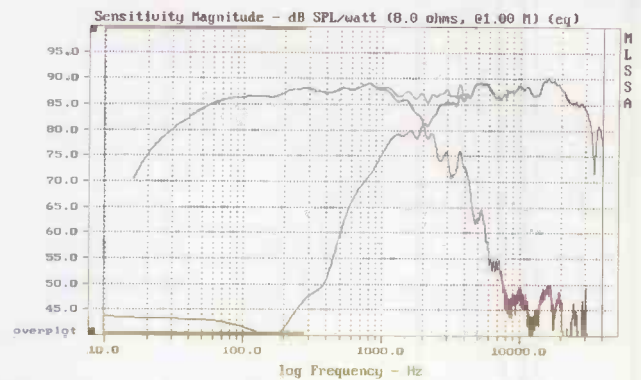


Figure 1. Response on axis and the individual drive units showing the crossover slopes. These approximate to acoustic 3rd order with Linkwitz-Riley characteristics.

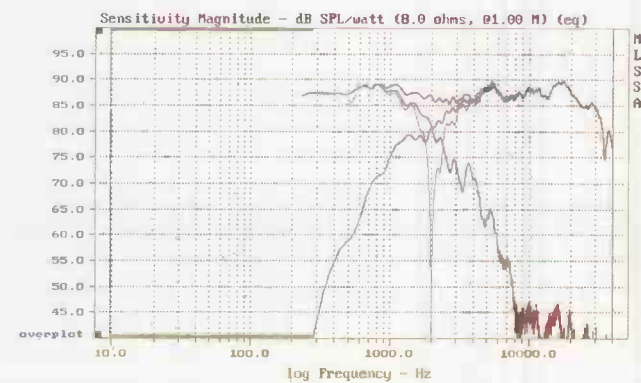


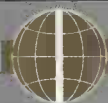
Figure 2. Response on axis and crossover (red) and with one driver reversed in phase (blue). The deep notch shows excellent phase integration between the drive units.

the treble unit.

The level of this depression is set by the resistor in series with the 0.42mH coil. Increase this resistor and you flatten the transfer curve of the treble crossover, decrease the resistance value and you sharpen the transfer curve as the crossover turns over. Feel free to play with this value; reducing it produces a slightly brighter performance, increasing it produces a warmer performance. You only need a change of, say, 0.5 Ohm to appreciate the difference.

You can see the overall response of the system in Fig. 1. together with the crossover slopes overlaid. Following the typical Linkwitz-Riley responses the crossover point is -6dB at 2kHz. The larger 0.42mH coil chosen, with its series resistance, gives a small shelf in the treble response below crossover, but this is the compromise chosen on the basis of listening tests!

The phase coherence of the drive units and crossover is easily indicated just by reversing the phase of one of the units. If the acoustic crossover is phase perfect then there would be just a sharp notch at 2kHz. I'm very satisfied by this result (Fig. 2) which marries up with the listening



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WD25A Standmount Speaker Kit

"The one aspect that stands out is the easy ability to resolve instruments and voices ... bass quality and definition is a revelation"

Cabinet kit (pair) £349

The aperiodic enclosure offers the bass clarity and definition of a larger closed box, together with the efficiency and easy amplifier load necessary for users of valve amplifiers. Available with SEAS STD soft dome treble unit, or high performance SEAS Millennium treble unit.

WD25A STD kit (pair) £269

WD25A EX kit (pair) £699



WD25T Floorstanding Speaker Kit

"The WD25T always sounds crisp and taut, but can 'rumble' menacingly giving impressive physicality reminiscent of far larger boxes. Imaging is superb, the midband is also special; it's very open with masses of detail about the condition of the recording"

Cabinet kit (pair) £549

Cunningly arranged as an aperiodic enclosure leading to a lower sealed compartment, the WD25T combines the optimum damping of aperiodic loading with the bass extension of a large closed box. Available with STD soft dome or high performance Excel treble units.

Both the WD25 kits are based around a SEAS 26cm (10") paper cone bass unit with an efficiency of 89dB for 1W. The crossover has been developed for an easy drive 6 - 8 Ohm load making the system ideal for all types of amplifiers.

WD25Tv2 STD kit (pair) £329

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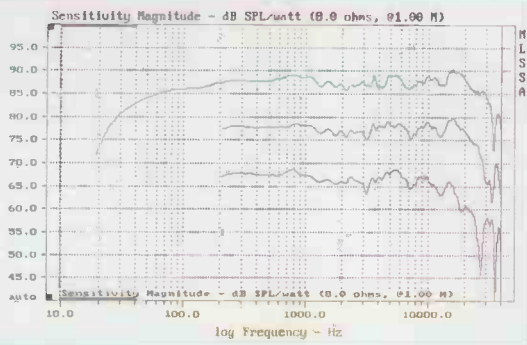


Figure 3. Frequency response on axis (blue) with response 15 degrees and 30 degrees horizontal off-axis. The character of the speaker is maintained well off-axis so room reflections will sound tonally identical to the direct sound.

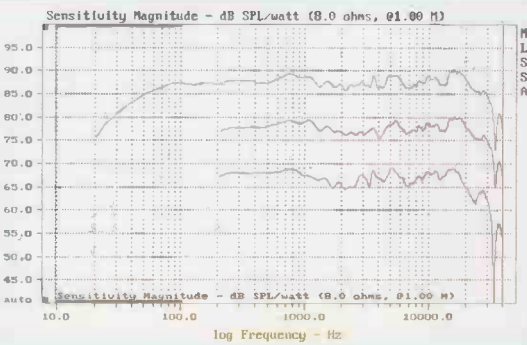


Figure 4. Frequency response on axis (blue) with response 5 degrees above and 5 degrees below. The character of the speaker is largely unaffected by seating height.

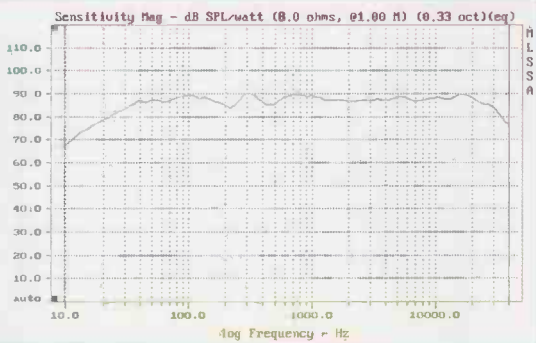


Figure 5. In room response, taken as an average of multiple mic positions, showing excellent integration into room.

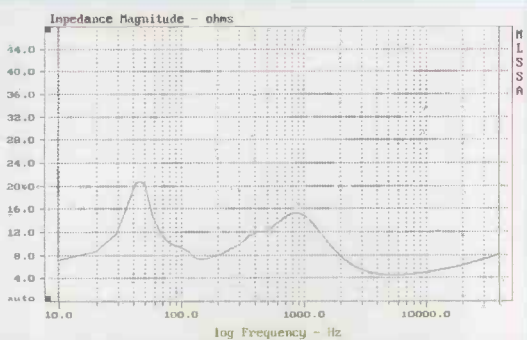


Figure 6. WD25t EX impedance. Apart from the droop to 4.2 Ohms at 5.5kHz, which won't cause any amplifier a problem, this is a nominal 8 Ohm load.

result where it's not easy to discern the individual drive units and the stereo image is rock solid at all frequencies.

You can also see, in Fig. 3 and Fig. 4, how the WD25T EX measures off-axis. For the speakers to sound tonally balanced in a room the character of the response off-axis must look very similar to the on-axis response, both horizontally and vertically. This is a tough trick to pull off but, I believe, necessary if the speakers are to present a realistic sounding, natural musical performance.

Figure 3. shows the responses on-axis, 15 degrees horizontal and 30 degrees horizontal. You can see, now, why the WD25T EX sounds so realistic even when sitting to the side as the character of the response is maintained right up to 15kHz. Similarly your seating height makes little difference to the response you'll hear either. Figure 4. shows the response at 5 degrees vertical above and

responses you'll note that the bass output shelves down below 200Hz. Placement near a rear wall brings that output back up again and the room gain maximises the bass extension offered by the closed cabinet loading.

Again this response character is very similar to the on-axis response through the midrange and treble which augers well for a natural and realistic sounding musical performance in any room.

Finally, the impedance plot shows that no amplifier should have trouble driving these speakers. There are no sharp peaks and troughs in the impedance through the frequency range and the marginal fall to 4.2 Ohms between 5 – 6kHz won't bother any amplifier – to all intents and purposes this is an 8 Ohm speaker.

Overall, then, the design and technical goals have been met and we can confidently claim that this is the highest performance version of the WD25T

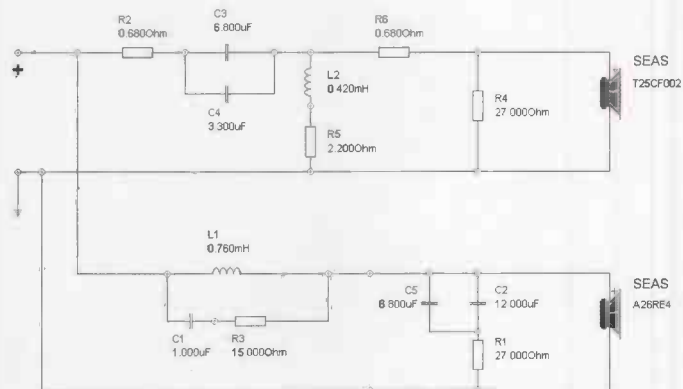


Figure 7. Actual crossover circuit and values for the WD25T EX. Bass coil, L1, is a ferrite core inductor with internal resistance of 0.2 Ohms, treble coil, L2, is an air core with internal resistance of 0.9 Ohms.

below the listening axis.

Overall response, in room, is indicated in Figure 5. which is the averaged output across a number of microphone positions with the speakers placed near a rear wall. From the on-axis semi-anechoic

that you can get. There are a few constructional details, such as housing the crossovers external to the speaker cabinets, that will be the icing on the cake and, I hope, next month we'll see an independent review in this very magazine.

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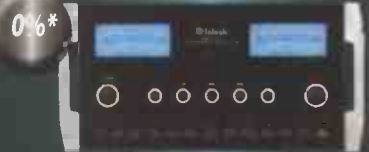


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"The £1,250 price buys CD, MP3 CD, FM and DAB radio, plus complete iPod integration and a Class D stereo amplifier giving 100W per channel into 4 ohms. All is neatly presented to the user on a pleasing 3.5 inch QVGA display for all control and set-up activities. The package is robust and simple, a single box which contains the machine, mains leads, ribbon and telescopic 'temporary' radio aerials, an attractive remote and the manual. Importantly, it also comes with the all-important 'M-port' cable - a proprietary RS-232 to iPod dock connector lead to facilitate all manner of iPod hookup. And for the

real gadget fiends there is also the possibility of an alternative connector for that M-port RS-232 - Myriad's 'Blueplay' adaptor permits the Mi to pair with Bluetooth devices such as mobile phones and laptops using the A2DP (Advanced Audio Distribution Profile) protocol. Two S/PDIF digital inputs are provided, along with two analogue inputs and a Tape (or CD-R) loop. The casework feels impressively solid, hefty and attractively well made, with a deep aluminium faceplate and lit (but dimmable) glass touch buttons. The CD drawer has a solid, positive feel on open and close, and the overall feel is of a piece of design which looks the lifestyle part and justifies its price tag.

Kicking off with Compact Disc, and I was immediately gripped by a musical performance of Pet Shop Boys' 'It Must Be Obvious', and the progression into the remix version of 'So Hard'

confirmed my primary impression about the Mi's CD voicing – it has deep and rich bass, and mids are focused and convincing. Happily, this is not an in your face, 'boom tizz' machine. It's a clean and smooth performer, with a good projection of stereo and confident sound. Switching to radio, and FM and DAB reception were good enough to give a solid, thumping rock music sound on both analogue Radio 1 and digital 6 Music. Voice programming was given a smooth, naturalistic tone. I then moved on to hook up a variety of iPods and iPhones, all happily surrendering control to the Mi. Navigating playlists on the Mi Screen is intuitive enough, and the large scrolling display option of either artist, album or track name reassures. In this respect, it's on another (higher) level to its Linn and Arcam rivals. Those in the market for a small, neat and stylish single box solution should put this one at the top of their 'to audition' list. You won't be disappointed."

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QUESTIONS

[1] What Class of amplification does it use?

- [a] A
- [b] B
- [c] C
- [d] D

[2] What type of display is used?

- [a] OLED
- [b] fluorescent
- [c] LCD
- [d] QVGA

[3] What does the Blueplay adaptor connect with?

- [a] SW radios
- [b] FM transmitters
- [c] Wi-Fi routers
- [d] Bluetooth devices

[4] Where on your audition list should the Mi be?

- [a] "at the side"
- [b] "in the middle"
- [c] "round the back"
- [d] "at the top"

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REGA P2 2008 £220

Some say the cheapest real hi-fi turntable money can buy - excellent value for money engineering, easy set up and fine sound.

TECHNICS SL1200/II 1973 £395

Slick build makes it a respectable performer, although the cheapo arm limits it - fit a Rega RB250 and it's suddenly a brilliant mid-price machine.

REGA P3-24 2008 £400

Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

MICHELL TECNODEC 2003 £579

Superb introduction to Michell turntables - on a budget. Top quality build and elegant design make it the class of the mid-price field.



ROKSAN RADIUS 5 2003 £750

Fantastic value allied to intelligent, interesting and 'out of the box' design makes for a wonderful entry-level superdeck. Open and musical sound is more inviting that Michell TecnoDec rival, and the bundled Nima Unipivot arm is a superstar.

FUNK FIRM VECTOR II 2009 £860

Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.



MARANTZ TT-15SI 2005 £999

Cracking deck/arm/cartridge combination, this must surely be the best sounding 'plug and play' package at this price point.

MICHELL GYRODEC SE2005 £1005

Design icon with superlative build and finish. Sound is beautifully smooth, effortless and exceptionally expansive. No longer peerless at the price, but still a brilliant platform.

AVID DIVA II 2008 £1,200

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ACOUSTIC SOLID CLASSIC WOOD 2008 £1,350

Majoring on impact, punch and drive, this is an impactful mid-price turntable in sonic terms as well as physical size.

PROJECT RPM 10 2006 £1,500

Brilliant 'fit and forget' deck that gives everything it plays a clean, warm, enjoyable sound - but not quite as effective in absolute terms as some price rivals.

REVOLVER REPLAY 2007 £1,500

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SCHEU ANALOG BLACK DIAMOND 2007 £1,500

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THORENS TD2030 2006 £1,895

Excellent design and a supplied Rega RB300 make this a highly capable vinyl spinner. Blue tint to the Perspex base is rather pretty, too!

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LINN LP12SE 1973 £3,510

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ACOUSTIC SOLID ONE 2007 £4,000

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AVID VOLVERE SEQUEL 2007 £4,600

Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Exceedingly neutral yet powerful sound is edge-of-the-seat stuff.

McINTOSH MT10 2008 £8,995

Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

EAT FORTE 2009 £12,500

Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.

TONEARMS

REGA RB251 1984 £136

Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds very well to rewiring and counterweight modification.

MICHELL TECNOARM A2003 £442

The late John Michell's clever reworking of the Rega theme, using blasting, drilling and rewiring! Surely the best overall performer under £500.



ORIGIN LIVE SILVER 2006 £599

This expertly fettled Rega boasts a superbly even, transparent and tuneful sound. Gives away only a small degree of finesse and dimensionality to top arms.

HADCOCK 242 SE 2000 £649

Latest of a long line of unipivots, with added mass, revised geometry and better finish. Musical like no others at the price.

SME 309 1989 £767

Mid-range SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

SME SERIES IV 1988 £1,127

Offers nine tenths of the SME V's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

AUDIO ORIGAMI PU7 2007 £1,300
HFW's best tonearm of 2007 is a derivative of the classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.

NAIM ARO 1987 £1,425
Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

HELIUS OMEGA 2008 £1,595
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

SME SERIES V 1987 £1,614
The so-called Best Pickup Arm in the World isn't quite, but comes pretty close. Vice-like bass with incredible weight, ultra clear midband and treble. Does everything except beguile the listener.

LINN EKOS 1987 £1,700
Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Lacks the SME's slam, the OL's clarity or the ARO's emotion, but has a feisty musicality all of its own.

GRAHAM PHANTOM 2006 £2,495
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality almost up to SME standards, which is saying something...

ORIGIN LIVE CONQUEROR 3C 2002 £2,650
Latest carbon tubed version of OL's penultimate arm is a breathtakingly capable device with a dizzyingly fast and neutral sound.



TRI-PLANAR PRECISION 2006 £3,600
Stunning build, exquisite design and surely the most naturally musical and lucid sound around makes this a remarkable pickup arm.

CARTRIDGES

AUDIO TECHNICA AT-110E 1984 £29
Great starter cartridge that's refined, detailed and musical beyond its price.

ORTOFON 2M RED/BLUE 2007 £60/£120

The first new budget MM designs for many years, Ortofon's 2M Red and Blue are high resolution designs that are an engaging listen



GOLDRING G1042 1994 £135
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

ORTOFON SAMBA/SALSA 2006 £150/£200

Fine cartridges that offer that MC magic at an affordable price. Samba is more dynamic and forward, Salsa rather smoother but both are great performers and track well.

DENON DL103R 2006 £200
Awkward to get working properly with a poor mounting arrangement, yet it rewards with a musical performance that makes similar priced cartridges sound cold.

DYNAVECTOR DV10X52003 £250
A distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

AUDIO TECHNICA AT-OC9MLII 2007 £399

New and improved stylus and cantilever plus serious price reduction equals stunning dynamics and clarity. A real bargain

ORTOFON 2M BLACK 2007 £350
Staggeringly good high-end MM that uses a stylus from the MC Jubilee and easily rivals similarly-priced MCs

DYNAVECTOR DV20X-H2003 £395
The best modern budget MC combines deliciously sweet sound with fantastic get-up-and-go. High output version works a treat with valve phono stages too.



LYRA DORIAN 2007 £495
Incisive and musical, the Dorian is one of the most revealing cartridges at the price.

ORTOFON KONTRA' B1999 £720
Surprisingly articulate performer by Ortofon standards. All the brand's usual polish and detail allied to real vim. Loves making music!



ORTOFON RONDO BRONZE 2005 £500
Excellent mid-price moving coil with real rhythmic alacrity and a decent deal of finesse.

ZYX R-100H 2005 £625
Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the very best at the price, with a presentation all of its own.

BENZ MICRO GLIDER L2 2008 £650
Crisp, clean and detailed MC; particularly impressive at both ends of the frequency spectrum

TRANSFIGURATION AXIA 2007 £890

Musically adept and highly resolute cartridge with impressive tracking abilities. Top end lift means careful matching required, however..

ORTOFON KONTRA" C2004 £1,000
The most secure tracking MC we've heard; its super clean, fast, detailed and neutral sonics make it a brilliant partner to warmer sounding turntables.

ORTOFON MC WINDFELD 2008 £1,799
Ortofon's new flagship MC is a sophisticated and alluring performer that takes the vinyl experience to a new level.

KOETSU RED K SIGNATURE 2007 £2,399

The new K Signature adds a hefty dose of insight and finesse to the already impressive Red and the results are fabulous

DIGITAL DISC PLAYERS

CAMBRIDGE AUDIO 640C V2 2006 £250
Superb entry level CD player; crisp, composed, musical sound plus fine build and ergonomics.

REGA APOLLO 2006 £498
Highly rhythmic and beguiling performer, although lacks some warmth of tone. Superb ergonomics and design

RUSS ANDREWS DAC-I USB 2007 £599
Not just a USB gadget, but a truly accomplished upgrade DAC that makes the best of CDs, MP3s and digital radio

CAMBRIDGE AUDIO 640H 2005 £599.95
Fine sonics and decent build make this our favourite affordable HD music server.

MARANTZ SA7001KI SIG2006 £600
Brilliant CD/2ch SACD spinner with a big, sweet, analogue-like sound - CD is totally competitive at the price with the best dedicated machines..

AUDIOLAB 8000CD 2006 £450
Ultra clean and transparent sound with great detail retrieval; just a tad bright and analytical for some, though.

SHANLING CDT-80 2005 £650
Very impressive mid-price machine with a big, sumptuous, expansive sound - better still when tubes are changed.



CAMBRIDGE AZUR 840C 2006 £800
Well built CD player with a silky, yet detailed sound and a whole host of useful facilities. Excellent value for money.

NAIM CD5i 2008 £895
Naim's new italic 'i' variant improves even further on the original mid-price classic, offering super tight, grippy and musical sound.

EASTERN ELECTRIC MINIMAX CD 2005 £925
Highly accomplished tube-equipped all rounder with a clean, open and musically lucid sound; superb value.



CYRUS CD8 SE 2008 £1,200
New Servo Evolution mech makes this the most musically engaging machine at the price, with super smooth tonality to boot. Optional PSX-R adds bass and dimensionality.

BENCHMARK DAC-I USB2007£999
Pro-biased DAC with useful range of inputs and impressive headphone outputs, too. Save £250 if you don't need the USB-equipped version.

ELECTROCOMPANIE T PC-I 2008 £1,034

Tidy and polished-sounding CD spinner with strong bass and an assured sense of confidence

EXPOSURE 3010 2003 £1,200
One of the most 'analogue' CD players, second only to the Shanling. Wonderfully beguiling balance leaves you looking for the tube output stage.

STELLO CD-T100/DA100 SIG 2008 £1,270
Fine top loading transport linked via i2s to an excellent upsampling DAC. Confident, detailed, explicit and architectural sound but smooth too.

REGA SATURN 2007 £1,298
Wacky looks surround a highly accomplished CD spinner that marries a smooth midband to excellent bass grip.

EDGAR CD-1 2007 £1,350
Quirky Slovakian CD spinner with all-valve output and a truly spine-tingling performance.

RAYSONIC CD128 2007 £1,599
Spaceship styling and fine build around a highly competent mid-priced CD spinner means a feast for the senses.

CHORD QBD64 2008 £3,000
Bespoke architecture gives a truly uniquely musical sound that's beguilingly musical in nature, with dizzying incision and grip.

SHANLING SCD-T2000 2007 £2,250
Updated version of original SCD-T200C standardises upgrades optional on the older model and adds a few more tweaks for good measure. The result is a stylish player that works superbly with both CD and SACD

TUBE TECHNOLOGY FUSION 64 2006 £2,200
Unique digital and analogue audio engineering makes for an exceptional CD player that, on some programme material, is peerless.



NORTH STAR MODEL 192 TRANSPORT/ EXTREMO DAC 2006 £2,918
Superbly finessed and loquacious sound allied to excellent build and finish make for a brilliant value high end buy.

ELECTROCOMPANET EMC-1UP 2003 £3,450
Quirky yet extremely capable high end upsampling CD spinner, with a musical fluency that beguiles more than it impresses.

ACCUSTIC ARTS CDP1MK2 2007 £3,985
Styling not to everyone's taste but build quality is impeccable and the performance is stunningly musical.

NAIM CDX2-XPS2 2003 £4,950
A fine high end machine, but add an XPS2 and it becomes one of the most charismatically engaging 16bit machines we've ever heard. Plays music with such passion!

NAIM CDS3 2003 £7,050
The most polished Naim CD to date; tremendously capable and musical, but lacks the Rottweiler quality of the cheaper CDX2-XPS2.

ACCUSTIC ARTS DRIVE 1 MK2/ TUBE DAC 2 2007 £7,980
Superbly built high end CD transport and DAC combo that shows just what the format can be capable of. Very tangible, musical sound with wonderful dynamics and glistening harmonics. Only curious styling and clunky build detract from its brilliance!

ESOTERIC X-01 2005 £8,995
Breath-taking feat of digital audio engineering, and surely the best sounding combination CD/SACD spinner money can buy.

LINN KLIMAX DS 2007 £9,600
Landmark network music player, offering brilliant sonics at up to 24/96 resolution from hard disk/NAS. Expensive, but you can hear why...

NAIM CD555/555PS 2006 £14,000
Very probably the best CD player yet made - certainly the most expensive; a digital *tour de force*.



DIGITAL RECORDERS

SONY RCD-W3 2002 £250
Usual superb Sony ergonomics make for non-sense budget buy. Fine direct digital copies, but analogue input poor. Middling sonics, but there's a digital output!

NAIM HDX 2009 £4,405
Interesting one-box network enabled hard disk music system gives superb sonics together with impressive ease of use.

PHONO STAGES

CAMBRIDGE AUDIO 640P £99
Excellent entry level design that raises the bar for budget phono stages. Crisp, smooth yet brightly lit sound on both MM and MC that's a vast improvement on most budget inboard designs.

PROJECT PHONOBOX LE2004 £99
Great little box that improves on most bundled phono stages found in budget integrated amplifiers, adding detail and definition and a measure of smoothness too.

TRICHORD DINO 2002 £299
Great all rounder with switchable MM/MC. Fast, fluid and smooth like no others at the price.

JOLIDA JD9 2006 £400
Hybrid tube/solid state phono stage with a good range of adjustability. Excellent value for money and a fine, dynamic sound.

GRAHAM SLEE ERA GOLD V 2004 £460
Wonderfully warm, open and musical nature makes this an essential audition for those wanting a top value mid-price phono stage.

PURESOUND P10 2007 £400
Guy Sargeant's new MM phono stage is an absolute belter. Simple but very effective.

AQVOX PHONO 2 CI 2006 £598
Brilliantly versatile yet affordable phonostage with a beguiling sound, but careful matching essential. Balanced operation of real benefit.

ICON AUDIO PSI.2 2007 £599
Excellent value valve phono stage with good range of facilities and fine imaging abilities.

A.N.T. AUDIO KORA 3T LTD 2008 £775
Exceptionally musical and natural sounding all discrete transistor phono stage, with highly lucid, valve-like presentation.

ANATEK MC1 2007 £850
Spectacularly good MC phono stage that offers serious insight underpinned by powerful and tuneful bass.



LINN LINTO 2000 £900
A musical and incisive performer, with more speed than the Delphini at the expense of detail and tonal colour.

QUAD QC24P 2007 £995
Dynamic performer that can be used on its own as a complete phono-level preamp.

EASTERN ELECTRIC MINIMAX PHONO 2006 £1,099
Highly capable valve phono stage with a relaxed yet involving demeanour. More beguiling than rival transistor designs, but sacrifices little in detail terms.

TRICHORD DIABLO + NCP5U 2006 £1,198
Highly musical performer, this is one of the best phonostages at or near the price, but lacks the polish of the rival Whest.

ICON AUDIO PS3 2008 £995
One of the very best valve phono preamplifier's we've heard, with an expansive, engaging and organic sound that makes vinyl a joy to listen to.

AMPLIFIERS

AUDIOLAB 8000S 2006 £400
In other life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound but not the world's most beguiling.

ICON AUDIO STEREO 25 2008 £500
Cracking entry-level valve integrated, with a warm and engaging sound. Limited power so needs careful partnering, though.

ROTEL RA-06 2008 £550
Vivacious sounding device that, whilst lacking the finer musical points, wears its heart on its sleeve and has plenty of power to match.

NAIM NAIT 5i 2007 £725
The italic 'i' version remains one of the most musically competent and dynamically engaging integrations at the price.

CAMBRIDGE 840A V2 2007 £750
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

JUNGSON JA-88D 2006 £899
Stunning value for money Class A monster integrated; extreme power and clarity at a puzzlingly low price.



SUGDEN A21A S2 2007 £1,299
More power and greater transparency improve even further on the already impressive A21a to give truly impressive results

NAIM NAIT XS 2009 £1,250

With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

SHANLING STP-80 2007 £1,199

Well built and surprisingly muscular valve integrated. Engagingly musical.

CREEK DESTINY AMPLIFIER 2006 £1,200

Superb build, useful power plus a deep full bodied sound make this an excellent mid-price buy.

ELECTROCOMPANIET PI-2 2008 £1,430

Powerful integrated with seriously solid bass and impressive dynamic abilities. Superbly musical.

SUGDEN A21A S2 2008 £1,469

Crystalline clarity, dizzying speed and forensic detailing makes this seminal design the most musical at the price, but power limited so needs sensitive speakers.

ANATEK A50R 2007 £1,600

Simple integrated amplifier with spectacular bass grip and effortless dynamics.

**UNISON RESEARCH S62002 £1,625**

Tremendously musical and lithe sound with real finesse and subtlety too. Very slightly upper mid forward encourages careful partnering with ancillaries (Revolver R45s are ideal), but overall fantastic value for money.

**MOON i-3RS 2008 £1,890**

Grippy and clean performer with fine soundstaging and build quality.

COPLAND CSA29 2006 £1,998

Unfailingly svelte, sophisticated and smooth - both to listen to and look at - this is a truly desirable high end integrated.

NAIM SUPERNAIT 2007 £2,475

Technological and sonic *tour de force* from Naim that combines impressive functionality and connectivity with superb sound quality.

VINCENT SA-T1/SP-T100 2006 £2,300

Impressively built and stylish pre/power combo that take any kind of music and make the best of it

LUXMAN L-550A 2007 £2,800

Monster Class A integrated with powerful and revealing sound and a whole host of useful features, including a highly competent MM/MC phono stage

AUDIO RESEARCH VS155 2003 £2,895

The Naim NAP250's tubular alter ego; oodles of power allied to a strong bass and smooth open midband makes this a brilliant all round amplifier. Lacks the subtlety and finesse of the low powered single-ended brigade but makes up for it with sheer brio.

LEEMA TUCANA 2007 £2,995

Leema's success story continues with this integrated amp that combines power, detail and great musicality in a solidly built package

**SUGDEN IA4 2007 £3,650**

Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

AV AMPLIFIERS**YAMAHA DSP-AX861SE2007 £700**

Highly capable A/V amplifier with mind-boggling array of surround sound options. Even has a decent MM phono stage!

ARCAM AVR350 2006 £1,500

Superbly accomplished do-it-all AV receiver package, with an uncommonly, warm, natural and musical sound. A winner goes from strength to strength.

DENON AVR-4308 2007 £2,000

Huge behemoth festooned with facilities and sockets, plus two remotes! Fortunately it's a brilliantly flexible and powerful performer.

NAIM AV2/NAP 150/NAPV 175 2002 £4,190

Brilliant audiophile multichannel pre-power amplifier combo; not as good with music as a two-channel Naim set-up at the same price, obviously, but surprisingly close. Elegant control layout plus a strong, clean and brilliantly engaging sound make this a serious crossover product. Ultimately lacks power compared to similarly priced Arcam gear, but is more musically involving.

HEADPHONE AMPLIFIERS**CHANNEL ISLANDS VHP-1/ VAC-1 2003 £390**

A truly exceptional headphone output stage; the best at the price and an essential audition.

MUSICAL FIDELITY X-CAN V8 2008 £350

Open and explicitly detailed sound plus serious bass wallop and the ability to drive anything to very high levels makes this a great partner for most mid-to-high end headphones.

SUGDEN HEADMASTER 2003 £600

Unusual combined preamplifier and headphone amplifier, this boasts a surprisingly smooth and open sound.

PREAMPLIFIERS**CREEK OBH-12 2000 £220**

Brilliant value budget passive, giving little away in sonics to far more expensive designs. Connectivity and build aren't great, but what do you expect at this price?

**MF AUDIO PASSIVE PRE2003 £1,500**

Effective pre with switchable gain via a transformer, and balanced operation. Open and incisive sound, yet makes most active rivals sound edgy by comparison. Silver version at the twice the price adds transparency.

**MODWRIGHT SWL9.0SE £2,000**

Captivating sound quality that will transform your system. Build quality is equally impressive and value top-notch. Highly recommended

NUFORCE P-9 2007 £2,200

Impressive two box preamp with superb resolution and an engaging sound.

MELODY PURE BLACK 101D 2007 £3,295

One of the best preamplifiers we have ever heard. Takes the clarity and openness we expect from valves and adds a staggering level of grip and detail. Stunning.

MUSICAL FIDELITY PRIMO 2009 £7,900

Staggeringly expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

POWER AMPLIFIERS**ROKSAN KANDY LIII 2008 £600**

Fine budget power amp that punches well above its weight.

QUAD 909 2001 £900

The latest current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but super value all the same. Lovely build, finish and Quad's legendary service are nice.

NAIM NAPI50 2002 £795

Driven by a decent source and a NAC112, this gives highly enjoyable results - providing you like the Naim sound! Taut, fast and feisty despite its relative lack of power.

SUGDEN MUSIC MASTER 2003 £1,300

Quintessential Class A Sugden sound is not warm as many expect, but extremely neutral and open with real tonal colour. Superb when partnered with efficient loudspeakers like Revolver R45s, but many will find it underpowered

**NUFORCE REFERENCE 9SE V2 2006 £1,750**

Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.



ROTEL RB1092 2007 £1,595

Hugely powerful digital amp with neutral midrange and a wonderfully spacious treble

CHANNEL ISLANDS AUDIO DI00 2005 £1,595

Clean and musical Class D monoblock power amplifiers in a neat, small package.

SILK GLOWMASTER KT88 2007 £1,699

KT88 based power amplifier offers dramatic clarity and excellent bass. *left.*

**ICON AUDIO MB845 2009 £2,499**

Creamy and seductive yet blisteringly fast and musically lucid, this pair of 845 tube monoblocks is staggering value for money.

QUAD II-40 2005 £3,230

Modern tube monoblock power amplifiers with plenty of power, liquid and open mid-band and spacious, airy treble. Explicit, engaging sound, but not as euphonic as some.

GRAAF GM20 OTL 2003 £3,300

Awesome output transformer-less valve power amp gives dazzling speed and incision, with an ethereal soundstaging and delicious filigree detail. Tremendous punch belies its humble 20W power rating. Factor in one of the most exquisite finishes this side of an Aston Martin and it's very hard to say no...

ELECTROCOMPANET NEMO 2009 £4,450 (EACH)

Monoblock power amplifier with breathtakingly open and fast sound, and apparently infinite reserves of power. Match with a smooth source for big audio dynamite!

QUAD II-80 2005 £6,000

Quad's best ever power amplifier, this is a dramatic performer with a silky but dark tonality, blistering dynamics, serious power and a compellingly musical sound. They don't come much better than these...

LOUDSPEAKERS**ACOUSTIC ENERGY NEO I 2007 £199**

Tidy and well balanced standmounters with pleasing clarity and detail.

B&W 686 2007 £279

B&W's new baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

USHER S-520 2006 £320

Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions

MORDAUNT SHORT AVANT 914i 2007 £300

Another pair of storming budget floorstanders from Mordaunt Short. Detailed, punchy and crisp.

REVOLVER RW16 2004 £400

Outstanding standmounter with tonal accuracy and speed that totally belies its price; good sensitivity for a small box makes it great with valve amps too. A budget audiophile classic.

LEEMA XERO 2007 £650

Superb mini-monitors that belie their modest price tag with a bold and finessed performance

ACOUSTIC ENERGY AEI CLASSIC £845

Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.

SPENDOR S3/5E 2004 £950

A natural successor to the BBC LS3/5a, whose Impressive neutrality, imaging and evenhandedness makes this a superior, if less charismatic, loudspeaker.

WHARFEDALE OPUS 2-MI 2007 £999

Large standmounters with impressive mid-range dome and fine integration across the frequency range.

RRR FS100 2007 £1,055

Mind-boggling amount of loudspeaker for the money. Big and sturdily built with serious bass and awesome soundstage scale. A real bargain.

YAMAHA SOAVO 2 2007 £1,200

Just as capable as their floorstanding brethren, the Soavo 2s have an assured sense of sophistication and poise.

REVOLVER RW45I 2006 £1,199

Very musical floorstander that's clear, concise and truthful, whilst being exceptionally amplifier friendly - a dreamboat for valves.

ONE THING AUDIO ESL57 2007 £1,450

One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

KIBRI NAIMA 2007 £1,550

Unusual-looking omnidirectional loudspeakers with an absolutely captivating performance. Huge soundstage and bags of clarity - brilliant!

GURU QM-10P 2007 £1,595

Quirky but adorable standmounters that are way off the pace in respect of detail and power, but amazingly capable at playing a tune and pulling you in to the music.

MARTIN LOGAN SOURCE 2008 £1,599

Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

USHER BE-718 2007 £1,600

Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

SPENDOR S8E £1,895

Generously large, silky smooth delivery, this dynamic sounding floorstander is an excellent all rounder.

**MONITOR AUDIO GS60 £2,000**

Brilliant modern rock loudspeaker with a fantastically lithe and engaging sound, but partner carefully with a warm front end.

YAMAHA SOAVO I 2006 £2,000

Musical and transparent floorstanders with impressive dynamics and cohesion. Fine build and finish,

**ISOPHON GALILEO 2007 £2,100**

Big, standmounters that really grip the music and offer quite startling dynamics and grip.

MONITOR AUDIO PL100 2008 £2,300

The MA boys pull out all the stops for their flagship 'Platinum' series standmounter with stunning results.

PMC OB11 2008 £2,950

Cleverly updated floorstanders give scale and solidity in slim and well finished package.

MOWGAN AUDIO MABON 2007 £3,995

Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

B&W BEOLAB 9 2007 £5000

Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.

ARS AURES MI 2006 £5,995

Sublime build and finish allied to an insightful, assured and even-handed musical performance makes these an essential high end audition.

QUAD ESL-2905 2006 £5,995

The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

REVOLVER CYGNIS 2006 £5,999

Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

B&W 801D 2006 £10,500

In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.

**ISOPHON CASSIANO 2007 £12,900**

Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

ACCESSORIES

MONITOR AUDIO IDECK2006 £200
Fine design, impressive flexibility and a lucidly musical sound make the iDeck the current iPod dock champion.

ISOTEK GII VISION 2006 £550
A genuinely effective and surprisingly cost effective upgrade, but results could vary so a home dem of the power conditioner is recommended.



TOWNSHEND MAXIMUM 2003 £800
Classy ribbon supertweeter with flexible level settings and cool styling - you'll be amazed at the difference it makes, especially with Quad electrostatics.

HEADPHONES

SENNHEISER MX-550 2005 £19
Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

SENNHEISER PX-100 2002 £29
Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.



GOLDRING DR150 2006 £70
Excellent build and fine sound makes these budget cans superlative value for money.

SENNHEISER HD-590 1998 £199
The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

SENNHEISER HD-650 2004 £250
Not the best headphone in the world, but a superb all round reference all the same. Very crisp, detailed and even sound allied to superlative build and fine comfort makes all most people will ever want. Cable upgrade yields great results.

STAX SR-007T OMEGA II/SRM-007T 2006 £2,890
Simply the best headphones we've ever heard at any price, these sweetly translucent electrostatic earspeakers are like no other headphone, or loudspeaker for that matter...

INTERCONNECTS

TECHLINK WIRES XS 2007 £20
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

WIREWORLD OASIS 5 2003 £99/M
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

CHORD COMPANY CHAMELEON 2 £90/M
One of our favourites, these are musical performers with a smooth yet open sound.



DNM RESON 2002 £40/M
Neutral and transparent - a steal!

VDH ULTIMATE THE FIRST 2004 £260/0.6M
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.



TCI CONSTRICTOR 13A-6 BLOCK 2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

MISSING LINK CRYO REFERENCE 2008 £375

Currently our favourite 'affordable high end' interconnects, with a deliciously smooth, open and subtle sound without a hint of edge or grain. Superb value, inasuch as it's as good as some designs at three times the price.

TUNERS

DENON TU-1500AE 2006 £120
Excellent entry level analogue tuner; slick sonics and fine feature count makes it a bargain.



CAMBRIDGE AUDIO 640T 2005 £250
Sweet sounding digital/analogue hybrid with fine build and finish at the price.

MARANTZ ST-7001 2006 £299
Super performance on FM coupled with its ability to get the most from DAB broadcasts makes this the best affordable tuner.

YAMAHA TX-761 2007 £350
Sets the standard for FM performance at the price and is no slouch on DAB either.

ARCAM FMJ T32 2009 £550
The world's first DAB+ hi-fi tuner, and it also happens to be the best DAB/FM hybrid we've heard to date. A brilliant product that deserves to succeed.

CREEK CLASSIC TUNER2006 £550
No tuner offers better sound per pound; wonderfully three dimensional and smooth from bottom to top.

MYRYAD MXT-2000 2005 £800
Truly sumptuous sound and excellent build is all most will ever need in a tuner; superb.

MAGNUM DYNALAB MD-100T 2006 £1,895
One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

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Superbly built all-in-one that offers excellent sound across all formats and is surprisingly easy to use.

MARANTZ 'LEGEND' 2007 £22,000
The combination of SA-751 disc player, SC-752 preamp and MA-952 monoblocks delivers a truly jaw-dropping performance. Start saving now...



Two Trew

Initially very well received, the Astin Trew AT3500 CD player has now been upgraded to this Plus variant. Paul Rigby wonders if the new model is worth the extra outlay...

One of the problems of upgrading any part of your hi-fi is that, once you change one box from a settled, balanced, rack, it can throw the entire system out of kilter - sometimes in unexpected ways. For example, I remember using a Linn Axis turntable very successfully with a Rega Mira amp and a pair of KEF Q55 floorstanding speakers. Then I 'upgraded' my £500 amp to a £1,400 pre/power Naim replacement - and all hell broke loose. I was totally unprepared for it and never realised that my warm Mira was keeping the brightly lit KEFs at bay, forming a synchronous bond. Minutes after the change I was unhappy with my hi-fi, and it cost me a packet and years of saving to replace several boxes to, once again, find the right balance. I never took system synergy for granted again...

Owners of the Astin Trew AT3500, who have been charmed by its playback qualities but who feel that they are now ready to move along the upgrade ladder may be worrying about a similar fate. "Should I upgrade or am I asking for trouble?", they might wonder. Surely, what's needed is a CD player that provides essentially the same playback characteristics but which does it better. So what they need is another Astin Trew, but a better Astin Trew! And that folks is exactly what the company is proposing with the AT3500plus, available as a standalone unit for £1,399 or a £220 upgrade...

The casework for both players is identical, measuring 430x340x110mm, weighing in at a heavy 9.1kg and comprising mostly

anodised aluminium. The top plate is resonance damped and the conical feet are made from a self damping composite material. In fact, the feet have been so effective for Astin Trew that the company now sells them as replacement parts for other products and are priced at £29.90.

The sparse controls remain in their familiar positions with an on/off button and function keys arrayed at the front and a basic set of RCA outputs plus a digital out on the rear, leaving many of the extra functions (i.e. Repeat, Mute, etc.) to the remote control. The display remains quite poor however. It is cramped and often requires assistance from Bletchley Park to fathom out...

The one frontal control of note is the upsampling button, rated at 24bit/96kHz. A contentious feature and much in fashion currently, its task is to effectively double the frequency of the digital number crunching - which shifts it out of the audio band where digital's weaknesses are audible - and then divide it back down again so we can hear it, minus digital nasties. Some think you lose more on the swings than you gain on the roundabouts as it were, but it's fair to say that most audiophiles wanting machines at this price point think it's a worthwhile feature, giving a smoother and more atmospheric sound. The CD tray is fronted by a clear fascia, behind which is a Philips CD12 mechanism and associated Burr Brown PCMI738 DAC.

"After completing the AT3500, I knew I could do more," said Astin Trew boss, Michael Osborn, "hence the plus. I've been an inveterate dabbler for many years and so have worked out many tricks of the trade

which are easy to do as a one-off but not so easy in production."

Whilst creating the plus, one labour intensive improvement was to add dampers on all of the integrated circuits on the DAC, bonding them with thermal glue - a feature sometimes found on very high-end CD players. The glue also acts as a heatsink which allows each element to work rather more efficiently. "I have a colleague who is also adamant that this process acts as a RF shield," said Osborn, "which might well be the case. It's a simple solution but a bloody fiddle doing it."

Other improvements include upgrades to the internal cabling from the DAC board to the buffer amp and the buffer amp to the output, replaced with the very highest quality pure copper. Previously, the AT3500 used a regular audio quality coaxial, silver plated, multistrand. The final modification is an upgraded buffer valve from the standard Electro Harmonix EC88 model - a good production model - to a Philips JAN (Joint Army Navy) valve which ceased production around 1963. This is new, old-stock model but there's still plenty out there.

The plus option can be ordered as an upgrade for your standard AT3500 but markets such as Germany are already selling the plus model as standard. While the basic AT3500 is created in a factory in China, the work for the upgrade is all done in the UK.

SOUND QUALITY

Testing was done with the upsampling feature turned off on both boxes, to give the competing units a level playing field and to negate possible

extraneous readings created by my reference system. Although it came highly recommended by editor DP, I personally had never heard an AstinTrew AT3500 before, so this aural comparison was doubly enlightening and, after running the Sugarbabes' 'Angels With Dirty Faces' 'Stronger' (Island) I became an instant fan. Gone were the ear-piercing vocals generated via excessive peak limiting and, while the cymbals hardly danced with fragility, they were nicely tamed. The AT3500's natural sweetness and warmth lends itself well to unruly, chart-based, CDs. Detail retrieval was startling, taking the secondary harmony vocal from the middle-eight and turning it into a floating spectral piece.

I did sense a slight slowness in rhythm that prevented me tapping my feet, however. The Astin seemed to be stepping carefully, like a the first steps after a broken leg, not wanting to put a foot wrong - or was it hunting for yet more detail to present before it moved onto the next musical bar? Synth runs were tracked easily and successfully and with more assurance than my other favourite in this field, the Roksan K2, whilst further surprises lay in the sweeping synth strings. This section generated large waves of deep bass that marched across the entire soundstage like those advancing arrows during the title sequence of *Dad's Army*. My One Thing Audio Quad '57s never knew what him 'em!

The shock continued with Can's 'Yoo Doo Right' from 'Monster Movie' (Mute) where the strong bass presence appeared to extend the soundstage - not to the left and right, there is a slight restriction there - but downwards. Such was the drum presence which weighted the Quads firmly to the floor. Guitars sang with a particularly metallic freedom and splendour where I heard a definite sequence of feedback. To finish, Malcolm Mooney's vocal works were heaped with emotional enunciation and variation offering an arresting blend.

On to Carol Kidd's 'Dreamsville' (Linn) and 'A Nightingale Sang In Berkeley Square' and a beautiful acoustic guitar solo during the middle-eight that confirmed that excellent upper mid and treble detail. Nigel Clark's highly complex finger-picking run was easily tracked - no

mean feat. Kidd's vocal performance was atmospherically breathy and sweet whilst the cymbals had just enough air underneath them to lend a sense of delicacy to the proceedings.

Running the plus variant alongside the basic AT3500 produced an intriguing contrast. For all three review CDs I was initially bamboozled. Having listened to the basic model all day, the plus sounded like it wanted to further reign in the limited soundstage width whilst rearranging the furniture for that basic mix for each CD...

In fact, it took a couple of minutes to realise what was going on. The basic AT3500 was acting, in effect, like an ink pen touching a piece of blotting paper. Each note was blurring slightly making each instrumental presentation overlap, producing a foggy arrangement and an illusion of extra soundstage width. The plus, on the other hand, was taking every musical element and giving each a tremendous amount of focus.

With the added focus came a sense of real clarity where each mix started to make sense. On the Sugarbabes track, for example, the synth washes, for the first time, were free to dominate the flanks of the soundstage providing a base track that, with some help from the improved valve buffer, added grandeur to the song. Bass sounded immediately more in control and sat well in the centre of an improved stereo image.

For the Can track, the practical effect of the added focus was akin to the plus reaching deep into the mix to extract new and enhanced details from its very heart. Drums offered a greater sense of maturity whilst the bass adopted a newly polished presentation. The more complex drum pieces found the improvements offered by the plus a positive boon as each was unscrambled with aplomb. In fact, the plus version of 'Yoo

Doo...' was evidently more confident, providing power and finesse where needed without any sense of strain.

That polish was also applied to Kidd's vocals on her vocal jazz release as a result of smoothing any extraneous harmonics while treble-flavoured cymbals positively shimmered. The principle beneficiary in the improved sound was the piano which, although taking a back seat during that acoustic guitar solo, now, because of the enhanced clarity, adopted more of a partnering role in the break.

CONCLUSION

The brilliance of the regular AT3500 is that it has a certain euphony that's so desperately needed in the barren world of budget separates hi-fi. But improve your ancillaries and you're left craving the same warm basic 'fingerprint', but with greater detail and focus. The new AT3500plus does just this, improving the dynamic nature of the presentation allowing the ear to pick up new information that previously sat behind the relatively fuzzy and foggy harmonics. For prospective CD player buyers, Astin Trew has, once again, raised the bar for audiophile sound quality at an affordable price for current Astin Trew AT3500 CD owners. The plus upgrade may be the best £220 you've ever spent.

VERDICT ●●●●● £
ASTINTREW AT3500 £1,179
 Highly musical player with a pleasingly sweet nature and an arrestingly strong bass.

FOR

- exuberant sound
- expansive presentation
- detail retrieval
- bass power

AGAINST

- slightly slurred bass
- lack of focus
- cramped display

VERDICT ●●●●● £
ASTINTREW AT3500PLUS £1,399
 Offering a crisp and clear focus that allows hidden detail to be extracted, the plus is an essential upgrade for all current AT3500 owners.

FOR

- super clarity
- finer focus
- enhanced detail
- dynamic articulation

AGAINST

- cramped display

AstinTrew
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 www.astintrew.co.uk

MEASURED PERFORMANCE

The At3500+ has a very flat frequency response with no high frequency roll down or low frequency lift, so it will display a good sense of tonal balance, veering toward some sheen in the treble. Results were identical at 44.1 or with 96kHz upsampling.

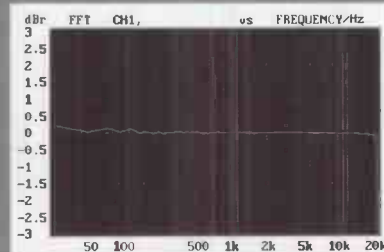
Distortion levels were lower than the earlier standard version, measuring a low 0.18% at -60dB with 24/96 selected. The Astintrew is linear and has a good measured dynamic range value of 110dB.

A continuing area of concern in this player lies in the jitter that exists on the digital output and is likely to affect analogue stages; it measured a high 200pS random, and up to 800pS with programme - high values. Better re-clocking is needed.

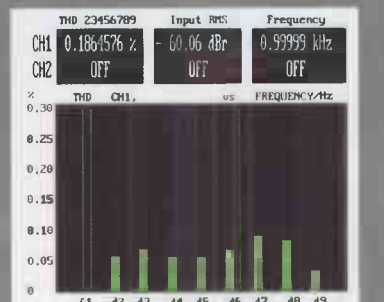
The At3500+ measures well in all areas except jitter, improving slightly on the earlier standard At3500. NK

Separation (1kHz)	115dB
Noise (IEC A)	-110dB
Dynamic range	110dB
Jitter	500pS
Output	2.4V

FREQUENCY RESPONSE



DISTORTION



Frequency response (-1dB)
 CD 4Hz-21.1kHz

Distortion (%)	
0dB	0.008
-6dB	0.03
-60dB	0.18
-80dB	2.6



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JANE BIRKIN & SERGE GAINSBOURG
Fontana

Responsible for one of the most notorious UK singles of all time, the (in)famous 'Je T'Aime Moi Non Plus' hit the top of the charts, despite the ban, in 1969. Neither Birkin or Gainsbourg were strangers to controversy, whether that was the films they created or appeared in, the TV appearances they made, the clothes they wore or the things they said. George W. Bush was not the first proponent of shock and awe – this couple had a few variations of their own. Was fate in fits of hysterical laughter when it prevented the US version of 'Je T'Aime' reaching any higher up the charts than number 69?

The album itself is a wonderful selection of quirky, sparkling songs that, as they were all created via Gainsbourg, have his unique personality stamped all over them. Sometimes the songs can be

downright silly – such as Birkin's rendition of 'Orang Utan' - but what Gainsbourg always gives the listener is surprising and delightful song structures. He was never boring or predictable in his creative output. For example, '18-39' is a wonderfully folksie, quirky, even perky little number while 'Le Canari Est Sur Le Balcon' is a deceptively simple vocal arrangement supported by interesting time signatures supplied by guitars.

Gainsbourg also had a gift for beautiful arrangements. Talking about 'Je T'Aime', forget the vocals the next time you hear it and just listen to the backing track. Is it groovy or is it groovy? If you happen to listen to the CD as opposed to what most people do and stumble over it on the radio, then you will be rewarded with a surprisingly delicate string section washing in the background. Gainsbourg's work is created at right angles, and he constantly surprises, taking unexpected turns when you least expect them.

MEDESKI, MARTIN & WOOD
It's A Jungle In Here
Gramavision

It would be wrong to say that this trio just played jazz. That would be like saying that Pele knew a bit about football. Medeski, Martin & Wood, who arrived on the scene after establishing themselves within New York during the nineties, play jazz for sure, but they span various sub-genres within and without that category that forms a sparkling blend that mixes rhythmic jazz with more *avant-garde* forms and more. The group do stem from a scene which is used to the more cacophonous side of the jazz idiom, that is true, yet the lads have certainly developed their own style...

The broad nature of their art is illustrated by this reissue that was initially released in 1993, and features guest guitarist Marc Ribot. It's a perfect example of the trio's penchant for exploration. Here, jazz is taken by the hand and brought into

i hear loving

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the fields of both soul and its sister, funk, with a touch of reggae. Where else can you find references from Thelonus Monk and Bob Marley in the one song ('Bemsha Swing-Lively Up Yourself'), and to Sly Stone in Medeski's own composition, 'Where's Sly'?? Adding to the soul flavour is the orchestration and the addition of the horn section from the Groove Collective, while the excellent piano lines that weave themselves throughout the tracks do well to accentuate the flow of the music without overpowering it. On top of this is the inclusion of electronic keyboards that successfully adds to the fusion.

For those of you who have followed this outfit or who have possibly discovered the guys via their more recently released albums, this CD is a great method of discovering the band's roots, where you will realise just how quickly they've developed as artists.

GROUNDHOGS *Scratching The Surface* **BGO Records**

On the face of it, the English blues band Groundhogs shouldn't be that popular. They should have sunk without trace a long time ago. Look at the facts: they were a decent blues outfit, although not the best these shores have ever produced. The blues bands from the USA were far superior and, as an outfit, the Groundhogs could jam for too long on very little. And yet, and yet... There is something about the outfit that

drags you in. John Peel was a sucker for them and I can see why. Tony McPhee, the band's heart and creative soul was able to take the core of the blues – the limitations of the genre, if you like – and create something new from it. Something that even the blues greats found tough to accomplish. McPhee could and still can twist riffs and introduce startling blues chords that make you sit up with a "what the...?" exclamation hovering over the top.

As a contrast, this, the band's debut album from 1968, presents a juvenile Groundhogs whose sound has yet to mature. In fact, the blues stylings played here were all being touted by the likes of early Fleetwood Mac and Savoy Brown which may just be the reason that you pick this album up in the first place. This is not an album packed with classic US-based blues covers, however. Most of the tracks laid down were penned by McPhee and the harmonica player – who was soon to be on his way – Steve Rye. That is not to deride 'Scratching...', however. There are still elements of the McPhee magic present here and, in fact, compared to their contemporary Brit competition, this significant album is notable for being the best of the bunch.

MAHALIA JACKSON *The Complete...* **Fremaux & Associes**

She was generally known as the greatest Gospel singer that ever lived – which is a mighty title to hold. Even after her death in 1972, Jackson

is still highly regarded and seen as the pinnacle of the genre. More specifically, when her vocals reached down towards the lower registers, she managed to scoop a whole shovel full of emotion which she scattered to great effect. The power of her delivery never failed to move which, after all, is what Gospel is all about.

This splendid series of CDs covers Jackson's entire musical output which answers the dreams of most Gospel fans. Jackson sang for many years in church before Volume One steps in for her 1937 recordings: four cuts she made for Decca that include 'God's Gonna Separate the Wheat From the Tares'. It was a long time before she entered the studio again, due to the moderate sales of her first works and, this time, on the Apollo label, where she covered another four songs. Jackson didn't get on well with the label and was dropped from the roster only to be brought back into the fold a year later to record 'Move On Up A Little Higher'. This was the song that shot her to fame and made her a true superstar. The label couldn't print enough records to meet the demand. From here, she would make frequent radio appearances and would tour extensively, including in Europe.

There are six CDs in this set that takes the story up to 1956 with, I would assume, more to follow. However, even if you pick just one CD (www.discovery-records.com) as a taster, grab Volume One which shows the development of a true star and a selection of her classic recordings.

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"most people simply don't realise what real hi-fi is capable of, and it's a crying shame..."



David Price

Whatever manufacturers might say, there's no such thing as the perfect loudspeaker. In fact, there's little that comes even close. More depressingly, the further you get away from the idea of spending around £10,000 on a pair, the harder it is to find anything that's even a faint facsimile of the ideal...

For example, listen to Usher's new Be-10 (reviewed by *moi* in this issue on p10) and then go into a trendy cafe bar and listen to an average pair of £150 boxes they use in their sound system. The difference is massive, so vast that it's hard for yours truly - not normally lost for words - to describe...

Average £150 boxes are but a pale shadow of what a top big speaker with a premium price tag can do. Doing a straight A-B between the two is like pulling a thick woolly blanket over the sound, making it harder to listen to and causing you to grapple with that curious squawky treble, boomy and boxy bass and general nasal nastiness that's all pervasive.

With a cheap loudspeaker, you can instantly hear the cabinet. No matter what shape it is - rounded, bevelled or whatever else - a budget box sounds like a pair of drive units lurking inside a resonant space, booming, banging and boofing in (or more likely out of) time to the music. The port is the real killer, slowing as it does the bass, chuffing away like an asthmatic smoker on forty a day and adding that extra unwanted 'boomf' to the sound - ideal for Groove Armada's latest album being played in trendy cafe bars of course, but nothing else.

But oh no, if you think the cabinet is bad, then don't forget the drive units. Moving coil drivers can

be very cheap to make, especially when they're coned with a fairly prosaic plasticky material, and this of course is why nearly all loudspeakers use them. Suddenly, that 'boomfy' colouration from the cabinet and port has a rival for your attentions, in the shape of a squawk the like of which a petulant goose would be proud, right across the most sensitive part of the audio spectrum. Even if the average £150 loudspeaker doesn't quite do this, it still dries and hardens the sound - just as the Spanish sun would a juicy, ripe grape. The result is that you've a drive unit that dramatically transforms the tonal character of the sound, often shouting at you at certain frequencies like it was holding a megaphone, and a box and loading system slurring and blurring other parts of the audio spectrum. Hmmm, nice!

That's why most people simply don't realise what real hi-fi is capable of, and it's a crying shame. The omnipotence of bad speakers - in bars, clubs, shops and even hi-fi dealers - means folk simply don't know what's possible. It's like the Vauxhall Nova craze amongst *Max Power* reading seventeen year olds - all their friends have them, and they all think they're great, simply because they've never driven anything better.

For this reason, speakers like the Usher Be-10 should be enshrined into European Human Rights legislation, with everyone having the right to access one, to experience a loudspeaker unsoftened by the 'boof' of a bass port, the 'squawk' of a midrange driver or the clank of a tweeter - all of which cost just a few pounds from an OEM supplier in Shenzhen.

These big Ushers are magnificent. Yes, they do take some considerable running in, and also even when run in they *must* be partnered with smooth

ancillaries and used for half an hour in anger before they really begin to open up and smooth out (just like NS1000Ms), but this done, the delicacy, clarity, speed and openness is a sight for sore ears - not a cause of them. They sound so natural, so unaffected, so devoid of intrinsic character, that you're forced to listen to the music in all its finery. This issues forth with remarkable ease, almost as if there was no other way. Which of course there is - go back to your budget boxes and the majesty of the music via the Be-10s fast becomes a distant memory. "Was it really like that?", you ask yourself as you suffer the unholy sound of cheap transducers chewing through the music like a bulldog with a wasp in its mouth...

Magazines such as this must celebrate products such as the Be-10, but I am afraid it's done with a tinge of sadness, for these big Ushers are out of the price bracket of almost everyone (including yours truly), and it's a crying shame that the money that most people have to spend on speakers can't unlock more than a fraction of what the '10s reveal.

I'm convinced that Usher have finally cracked Beryllium drive units (I found their earlier Be-tweetered speakers less convincing), just as Martin Logan have finally mastered full range electrostatics (see next month's issue for a full review of the CLX), but it's sad that they cost so much. Indeed, I hope Usher manage to do a smaller speaker, with those Be treble and midband drivers but in a more compact cabinet, and on a significantly lower budget. £10,000 is a big touch too much for most people to spend on a speaker, but I feel that some might just - one day - countenance paying half that for a similarly engineered, albeit downsized, Be-5. I know I would! ●

// the singularly most addicting piece of gear I have ever heard"

10 AUDIO REVIEW

"A new benchmark for musical communication" STEREOTIMES

"One of the truly special products I've reviewed in the past 18 years" STEREOPHILE

Winner of Stereo Times magazine Most wanted component of 2005 award



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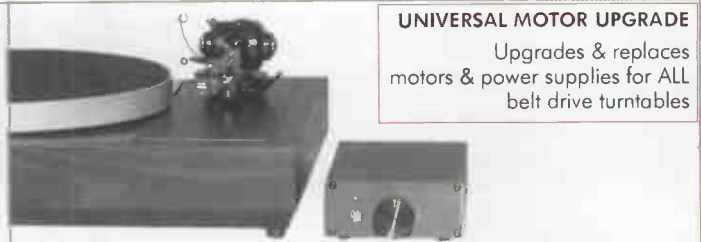
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"In selling this test short, I feel 'The Gadget Show' has not given vinyl, CD and MP3 a fair comparison..."



adam smith

A few weeks ago, Monday evening at 8pm found me perched in front of Channel 5. For those of you who know my petrolhead tendencies, you're probably expecting a random narrative on the delights of 'Fifth Gear' [what they? - Ed.] but no; the occasion this time was 'The Gadget Show'. Now I am not normally an avid viewer of the programme as, although not immune to the visual charms of presenter Suzi Perry (and her skirts are getting shorter each series, apparently) [if you say so, Adam! Ed.], I find her two co-hosts rather irritating. However, word reached me during the day that the show were planning to do a shootout between vinyl, CD and MP3 to find out which was the best way of listening to music and this I just *had* to see! Consequently, I tuned in to what I hoped would be a well informed and thoughtfully presented comparison. Needless to say it didn't turn out quite like this. I'm not going to leave you on tenterhooks – the result was MP3 first, CD second and vinyl third but, more surprisingly, my television set remained undented as I think that, given the circumstances of the test, this was probably a reasonable result. Before anyone thinks I have gone over to the dark side, perhaps I should explain further...

The test itself basically had a few areas that one might say were open to debate, but I think that some of these, one in particular, were far more important than others. Firstly, there was the location for the test – it took place in a small concert hall, with the equipment set up on the stage and the presenters sat listening, blindfolded about five or six rows back. Maybe this is not exactly representative of the average listening room, but I thought it a reasonable enough compromise, and remained

the same for all three sources, so no problems there. Equally, the choice of music, namely the intro to 'Money' from Pink Floyd's 'Dark Side of the Moon' came in for some stick, but it's a well known track and a fine recording, on remastered CD, 180gm vinyl and MP3 so, equally, fine by me. Mind you, I did wonder if the choice of 320kbps bit rate for the MP3 track was not exactly representative of what the man in the street is listening to.

So then, on to the equipment itself, and here is where I was rather perturbed. 'The Gadget Show' chose to use Mordaunt Short Performance 6 floorstanders and, again, I feel them a fine choice. They are capable of filling a small hall and are detailed and revealing but without being surgically ruthless. Amplification was provided by Denon and, thanks to Channel Five's 'FiveFWD' watch-it-again service, judicious freeze framing and a spot of research into control layouts and headphone socket positions, I deduced they chose the PMA1500AE amplifier. Now, don't get me wrong, this is a good unit, but I think that driving £3,500 worth of loudspeakers with £1,000 of integrated amplifier may have been underselling them a bit. The Performance 6s are not difficult to drive by any means but do respond to high quality amplification. I cannot help but wonder if they were sold a little short here.

On to sources then, and CD came courtesy of a Denon DCD1500AE (£800) – again a good match with the amplifier and a fine player but still a little miserly on the end of loudspeakers that cost over four times as much. MP3 was played on something called an 'iPod' – they're popular apparently [well, the youngsters like them! Ed.], so this would seem an obvious choice, and this was sat in a Denon iPod dock. So then, what turntable did the

producers select for the vinyl replay? A Rega? A Pro-Ject? Er, no, this was a Denon as well. Now, before you rush off to the Denon UK website, I can tell you that all you'll find on there is a simple and cheap USB turntable, however, donning my deerstalker, I worked out that you will find the deck used for the test on the Denon USA website. It is called the DP-300F, it's fully automatic, it has a built in phono preamplifier and it retails for \$350 which, even given the perilous state of the pound at the moment, equates to around £250 at the time of writing! Oh and if you're wondering why it isn't on the UK website – that would be because, as confirmed to me by Denon's lovely PR people, it is not available here.

So, thanks to the Gadget Show I learnt that an iPod playing a higher than average bit rate file sounds better than a mid-price CD player which, in turn sounds better than a cheap 'convenience' turntable that you cannot buy in this country. This is actually fair enough, but my gripe is that this hardly gave the vinyl LP a fair bite at the cherry at all – maybe I should have expected nothing less given the 'Gadget' in the show's name, and the fact that it is sponsored by PC World, but still I feel a bit cheated. This is a show meant to appeal to the average person, who is not obsessed by the finer details of such a subject, but would like a basic overview. In selling this test short, I feel that the Gadget Show has not given the three formats a fair comparison. What concerns me most however, is that I know a bit about hi-fi, and know where this comparison went wrong – if I choose to follow the Gadget Show's advice on a different subject about which I know less, how can I be assured that their advice is reliable? Frankly, I'm not sure I can, which seems rather sad. ●



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"a good mastering engineer can be the difference between a great or terrible reissue..."



paul rigby

Most people, when they hear an original vinyl or Compact Disc, have a very black and white viewpoint on its sound quality - and this is generally for good reason. It either sounds right or it doesn't. If you've got yourself a bad one, there may be a host of reasons why. However, when an album is being remastered to CD or vinyl, this is the time when a talented remastering engineer can correct a lot of these original problems. The quality of digital technology today is such that many of the problems found on original mastertapes can be dramatically alleviated...

Take, for example, two packages from BGO Records based on the classic progressive rock outfit, Family. Firstly, there's the two disc set including two entire albums: 'Fearless' (1971), which also features bonus tracks, plus the live album, 'Family Live' (2003). Next, there is the solo projects by the Family front man, Roger Chapman, 'Chappo' (1979) and his solo live album, 'Live In Hamburg' (1979). What is interesting is that they all reside in different eras when technologies and production methods varied and, in addition, some albums were recorded in a studio environment and others in a live setting. Each also suffered from varying effects of the ageing process.

Talking to the mastering engineer for all these albums, Andrew Thompson, from Sound Performance, it was interesting to hear the different requirements that each album had. 'Family Live' for example, a recently produced live album, only required "a little bit of bass, here and there. Even a couple of tracks sounded good flat, without any treatment required.

Nowadays, people have more toys that can help the production. The guys recording in the late sixties, for example, would be working a lot harder, manually checking and controlling by ear rather than the automation that goes on now. In those days you would have relied more on skill - nowadays you run down a checklist."

In comparison, the live album from 1979, 'Live In Hamburg' did require some work, as Thompson explained, "there was some addition at 63Hz to add a bit of depth at the bass, specifically to give some guts to the kick drum. Later in the live album, I had to pull things down at 125Hz, to remove the muddy sound".

The efforts required during remastering are not only magnified when a new and old original are compared. They also differ when two albums were released either side of the seventies. The 'Chappo' album, from the late seventies, required a bit of calming down. This is an album with a variety of styles: big rock numbers, female vocals, ballads, etc. Thompson told me that "there was a little bit added at 100Hz. That would just warm things up slightly and would also affect some of the lower bass lines. It would also add some depth to the drums too." So, basically, the album just required a general, low-end fillip.

In comparison, the older album, 'Fearless', from earlier in the same decade, needed more work. "Tracks one, five six, seven and eight, all had a bit added at 3kHz to bring out some detail, generally. That was mainly because the album had a slightly boomy sound. I had to reduce at 125Hz - if you have an excess in this area things can sound very boxy and hard. Difficult to play at any sort of

volumes. In fact, a frequency that can create distortion."

So, in some respects, for the early-seventies release, 'Fearless', Thompson had to work in both directions at once. Both calming down the whole album to reduce that muddy sound but then picking elements out of that morass to lift detail. Playing with the sound, in this way, is a balance. As Thompson said himself, it's important to know when to back off to get the best out of each tweak. Less is more in the mastering world. So where did that boxy, muddy sound come from in the first place? After all, albums are supposed to be recorded to high standards are they not?

"That could be down to a weary master tape, oxide shedding - so it may not have sounded like that early on. It may have been down to the way it was recorded. It may have been recorded onto a reel-to-reel with dirty heads. It could even have been a copy that was poorly made. There's any number of reasons for the weak link," said Thompson.

So, generally, the older the album, the more work that a mastering engineer is required to do. A good mastering engineer, therefore, can be the difference between a great or terrible reissue. Such individuals are worth noting and following. If, in the future, you buy yourself a remastered CD or vinyl of an album produced many years ago and you really like the sound quality, why not take the trouble to check out the liner notes and find out who has done the mastering. Then, before you buy any further reissues, look for that name as a sort of stamp of quality - then you'll know that you will be getting value for money. ●

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"we could be witnessing digital radio finally taking off across the whole of Europe..."



steven green

After many years of broadcasters showing little or no interest in digital radio, a number of recent developments suggest that it *might* finally be on the verge of taking off in a number of European countries over the next year or two. One of the main developments has been that Germany's sixteen regional governments and the country's radio broadcasters have agreed on a "big bang" relaunch of digital radio using the DAB+ standard, and a new national DAB+ multiplex is planned to launch early next year.

Another significant piece of news is that, in France, which is also launching digital radio next year but has opted to use the DMB standard (DMB is effectively identical to DAB+ apart from DMB also supporting video), their government has announced that all new radio receivers apart from car stereos must be able to receive digital radio from September 2012, and this requirement will be extended to car stereos the following year. One of the main problems with DAB take-up in the UK has been that 80 to 90% of all audio equipment sold that contains a radio tuner still only supports FM/AM, so this announcement means that take-up of digital radio in France should be far faster than it has been in the UK.

There have been a number of other digital radio developments in recent months as well. Switzerland, which was once one of the handful of countries that were making a serious stab at promoting the old and dilapidated DAB system that we use in the UK, now has a multiplex on-air where all-but-two of the stations are using DAB+, there are other DAB+ multiplexes in the pipeline, and plans have been drawn up for all DAB stations to switch to DAB+ by the end of 2012.

Another DAB 'old guard' country, Sweden, whose public service broadcaster Swedish Radio actually fought to try and stop DAB+ being designed, now looks very likely to relaunch digital radio using DAB+ next year after the Swedish Radio and TV Authority (RTVV) recommended to the government that DAB+ should be adopted. And even Denmark, which is the only country with as high a level of DAB take-up as the UK (sales have been dismal elsewhere), apparently wants to launch DAB+ in the near future as well. The UK broadcasters and Ofcom will no doubt be watching closely to see how the introduction of DAB+ goes in Denmark. In my opinion, if a brand new commercial radio station were launched in the UK tomorrow using DAB+, I truly doubt that anyone would bat an eyelid. People would complain if existing DAB stations were replaced by a DAB+ version that they couldn't receive, but that wouldn't happen for some time yet anyway...

Elsewhere in Europe, last year saw Malta become the first country to exclusively use DAB+ for digital radio, a large number of stations in Italy switched from using DAB to DAB+, and DAB+ is currently being trialed in the Czech Republic and Hungary. Further afield, Australia is currently gearing up for its launch of digital radio exclusively using DAB+, although due to credit crunch issues the launch has been put back from May to August.

Another positive development came when the WorldDMB Forum published a set of 'Receiver Profiles'. The positive aspect of these profiles is that they require all digital radios to support the DAB, DAB+ and DMB standards, which will finally put an end to DAB-only radios being sold in the UK. The ability to sell the same receivers in any country irrespective

of the digital radio standard that's been adopted will also deliver the economies of scale that manufacturers yearn for, which will help to drive down receiver prices as well – another issue that has held back DAB sales in the UK.

There have also been positive developments on the chipset front, as Frontier-Silicon has released the Venice 5.1 and Venice 7 modules, which both support DAB, DAB+ and DMB. Both of these modules are electrically and mechanically compatible with the Venice 5.0, which is the DAB-only module used in the large majority of DAB receivers sold in the UK, so manufacturers will be able to simply slot-in either of these new modules in existing receivers without having to carry out any redesign work. Significantly, Frontier-Silicon says that the new Venice 7 will allow manufacturers to produce DAB/DAB+/DMB receivers at the same cost as DAB-only receivers, and as the additional cost associated with supporting DAB+ (even though the difference is literally only a few pennies per unit) has been holding manufacturers back from switching over to using DAB/DAB+ modules up to now, this should mean that manufacturers will quickly switch their existing receivers over to supporting all three standards.

Although it's taken a couple of years to happen, DAB+ now looks to be progressing well, and with both France and Germany re-launching digital radio next year, we could be witnessing the first stages of digital radio finally taking off across the whole of Europe. Another implication however, is that the only countries left broadcasting any stations using the old DAB standard in a few years' time could be the UK and Norway – the technological equivalent of getting "nul points" at the Eurovision Song Contest! ●

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"I'm beginning to see a definite link between 'clunking' tonearms and sound quality..."



noel keyword

There's nothing quite like an old clunker - and I use a good one. My almost pen-sionable SME 312 tonearm has proved indispensable, and reminds me that the noise an arm makes is really rather important. I've never mastered cueing devices, as in the past they have proved as predictable as an octopus in a steeplechase. I've seen too many armtubes skid this way and that on their final descent. Things were at their worst many moons ago when low tracking forces were all the rage. Empire and ADC were in a race to get below 1gm, when the arm all but floated above the groove - so hand cueing was essential.

This 'fingers-on' approach to arm control has had me wondering. Over the years I've noticed that arms have a distinct feel to them. Some don't feel right and make funny zinging sounds that can be heard and felt through the fingers, whilst others feel wonderful when cueing - absolutely solid - and when placed into their rest make a satisfying clunk. The early SMEs, for all their low mass, were very lively and made a light 'ting' if disturbed. The Rega RB300 on the other hand always felt inert and sounded dead when mechanically disturbed by placing it in the rest or - a small trick of mine - lightly tapped by a loosely held small screwdriver...

As I accumulate experience in testing arms with an accelerometer to measure their vibrational behaviour I am beginning to see a definite link between 'clunkers' and sound quality. An arm that sounds dead and feels dead in the hand does - often but not always - measure well. It isn't quite a forgone conclusion, but it does hold up most of the time.

It's hardly surprising you might think, but I am a little cautious because whilst this cause-and-effect

phenomenon seems to hold up well with metal tubes, I'm not sure it will always be so easy to make an educated guess about other structures. I was earholed by designer Karl Heinz Fink at the Bristol Show about all this because he has started looking at how pickup arms behave using a laser interferometer, able to visually capture their motion, and he too noted that some designs looked good but didn't measure so well, whilst others that look as if they won't work perform very well. He wanted to know what I'd found using an accelerometer, and I told him "much the same".

Duffers are the early SMEs that sacrificed arm solidity for low mass, the ADC Black Widow, a carbon fibre wand that looked like a liquorice stick and was as effective as one, and most of the standard tubular arms including the lively Jelco SA-250 (S shaped) but not the similar SA-250ST (Straight). When two arms from the same stable are so different like this, one wonders what is going on!

Alastair Robertson-Aikman, founder of SME, told me long ago that he regretted the super low mass Series III arm, with its titanium arm tube and carbon fibre headshell and I was told in hushed tones that it wasn't to be found in the SME museum, having been expunged from their history! Having used one for quite some time I don't think it deserved quite this treatment; it was in its own way an ingenious design, like all SMEs, as well as being an engineering masterpiece. Okay, sound quality was peculiarly ho-hum, smooth but unengaging. I was militating for rigid arms back then, having been warned by Garrard that arms ring and they felt it didn't help sound quality, a problem that spawned the Garrard Lab 80 with its Rosewood arm.

Rega stepped out spectacularly in 1983 with the RB300, aiming to tackle this problem by using a tapered aluminium tube that was in effect detuned so it couldn't ring like a church bell. It did the job well, and I personally love the Rega sound, not because it appeals to me technically but because it sounds so lively and dynamic, making LP a fun listen. It's easy to forget that with a mediocre arm, turntable and cartridge, LP can sound flat and boring. Rega claim to have sold 400,000 RB300s to users, all of whom are obviously enjoying true high fidelity sound on a budget.

What's really interesting are not the designs that don't work, but those that do, because often designs most of us might consider bizarre are in truth quite the opposite: they actually work better than standard pattern metal tubular arms. An example is the Scheu Analog Cantus, tested in our September 08 issue. This ungainly acrylic confection had a less resonant structure than most conventional arms; it's quite special. Then there is the notorious Schroder Bamboo arm! Suspected of being some kind of joke at our collective expense, - perhaps it is not. Used as scaffolding in Japan, believe it or not, bamboo is both light and very strong. Quite whether it is ideal for tonearms I do not know, and once upon a time I may not have cared to know, but now I'm realising there's more to all this than one might think. Perhaps Bamboo is every bit as good as carbon fibre, or even better? That's so long as it doesn't get eaten by insects, the fate of a wicker lampshade I once bought...

So don't forsake clunkers: they might be the very thing you are looking for. A nice, dead, satisfying clunk as you place your arm in its rest is a sign that all is well and there's nothing to worry about. ●

vinyl section

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JUNE 2009

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ANATEK MC-R 98

Adam Smith tries Anatek's high end statement MC-Reference phono stage.

VAN DEN HUL CANARY 100

Noel Keywood auditions this fine ornithologically named moving coil cartridge...

MICHELL FOCUS ONE 104

David Price pays tribute to Michell's lost nineteen seventies classic turntable, in this month's Olde Worlde.

news

ROUGHING IT

New out from Rough Trade – anyone catch the recent Rough Trade documentaries on BBC 4? – is the Bjork-ish Emiliana Torrini, also from Iceland, whose jazz/pop/electronic 'Me And Armini' is far from being 'me too'. Repromoted, the Hidden Cameras' second album (2003), 'The Smell Of Our Own', openly celebrates sex with a subversively Belle & Sebastian style whilst Adam Green's 'Jacket Full Of Danger' (2006) shows 'Green's eclectic influences to the full. An intelligent piece, this is Green's best album to date.



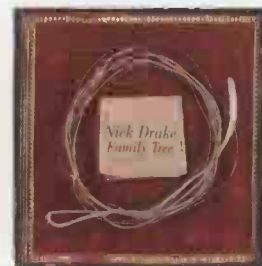
NINJA TUNEFUL

His first album as The Bug since 2003, Kevin Martin's latest release 'London Zoo' is a superb piece of dark electronica with a hip hop vibe reflecting repressive beats. The Qemists also offer a blend, this time with rock and drum'n'bass on 'Join The Q'. The four disc collection features a selection of guest vocalists including Mike Patton. It's not exactly subtle but it's lots of fun. Roots Manuva's latest, 'Slime & Reason' is his latest slice of rapping which offers more - breaking away from the typical to become the thinking man's hip-hop artist. Finally, The Long Lost's self-titled album (i.e.: Laura and Alfred Darlington (Daedelus)) mixes pastoral acoustic vibes, vocals and strange instrumental arrangements.



THREE RAYS OF LIGHT

Newly released via the Sunbeam label is 'Family Tree', a double album of rarities from the legendary Nick Drake. Largely pre-dating his debut album, 'Five Leaves Left', it includes two songs via his mother, Molly. In a similar tone, The Trees' 'The Garden Of Jane Delawney' (1970), is a mix of folk covers and originals with a Fairport Convention feel. Sunbeam also holds the redoubtable Rubble catalogue – the CD collection has already been covered in the Classic Cuts column. Now the whole collection has been released on vinyl. Volume six, featured here, includes bands such as The Accent and The End.



DOXY'S GEMS

Doxy Records certainly have a range of classic releases on offer covering a wide range of genres. The latest release batch is a good example. For example, the label has two classic rock'n'roll albums on offer: Bill Haley And His Comets' 'Rock Around The Clock' (1956) – a ground breaking album by any standards packed with energy plus Gene Vincent And The Blue Caps' (1957) self-titled album – a savage performer who was worshipped for his primordial music. Also on offer is Lonnie Donegan's 'Showcase' (1956) a breakthrough blues album – the first significant blues album by an Englishman. Donegan was a revolutionary artist, and this album tells you why. Finally, check out 'Crosscurrents' (1949) from Lennie Tristano and Buddy DeFranco, a brilliant LP featuring a mix of improvisation. It's a significant jazz LP mainly because it was way ahead of its time.



ROCK ON

SPV is certainly one of the world's major world rock labels and, as if to prove a point, has released a deluge of rock vinyl! First up is classic metal outfit, Iced Earth, with the power metal sequel to 'Framing Armageddon', 'The Crucible Of Man' – a grand concept album. Then there's two from Kamelot: 'Ghost Opera' (a symphonic metal album from 2007 that combines complex musicianship with posturing) plus The Black Halo (a superb progressive album from 2005). Another couple, this time from Accept. 'Restless And Wild' (1983) was one of the best metal albums recorded in the eighties and had ferocity written all over it. Whilst 1981's 'Breaker' never reached the same heights, it did allow the band to realise its own creative personality. The final double features a couple of crackers from Canadian thrash-merchants, Annihilator. 'King Of The Kill' was an excellent release in 1995 after a previous dip in form while 'Refresh The Demon' (1996) continued the newly rediscovered high thrash quality.



BLUES BREAKERS JOHN MAYALL WITH ERIC CLAPTON



991 RARITIES

991 is one of the UK's largest retailers of music collectables, which not only handles memorabilia of all types but CDs and, of course, rare vinyl. For example, some of you will be aware of the John Mayall with Eric Clapton album, 'Blues Breakers' (1966). 991 is offering a very rare original. This mono LP with red 'unboxed' Decca logo labels is priced at £295. Rather more affordable is the prog band, Colosseum's, 'Those Who Are About To Die We Salute You' (1969). Another rare original, this first pressing is worth £100. Finally, for jazz fans, Stan Tracey's 'In Person...', on Columbia Records (1967), was sent, as a 'factory sample', to a journalist for review. He played it once and then filed it away in storage where it sat for thirty years. A mere bagatelle at £50.

Master Reference?



Is the new MCR phono stage the reference Anatek claims it to be? Adam Smith investigates...

It's a sad fact of life that, during troubled economic times, smaller companies struggle to survive and, more often than not, end up disappearing due to falling order books. Without the financial support of a larger organisation to back them, such smaller companies have no way of riding out the storm while the market recovers and people start heading off to the shops again...

Interestingly, this current global downturn doesn't seem to have hit the specialist hi-fi industry as hard as one might have feared. Speaking to several manufacturers at recent shows has revealed that things have quietened, but that generally the market is still moving along. The reason this all concerns me is its possible impact on a company whose products I admire – Anatek Acoustics. The company did indeed benefit from the 'umbrella' of a larger electronics company until last year, when parent apparently decided that its child was not turning around a suitable profit quickly enough, and closed their doors on them. Fortunately, Anatek's

and retails for £1,200 more than its MCI sibling, at £2,000. For this you get a full-width, slim and neatly styled case, with some serious heatsinking down each side and, I feel, a rather better visual finish than the MCI. Inside, the circuit design is all brand new, incorporating Anatek's 'direct Coupling' circuit topology, whereby in-circuit coupling capacitors are eliminated and the design incorporates naturally low DC drift, thus minimising distortion. The audio signal also has no integrated circuits in its path and the only passive components in this path are used for RIAA equalisation. Finally, the output stage is Anatek's single ended Class A types using J-FETs.

As per the MCI, the MCR is intended for moving coil cartridge use only, but Anatek have incorporated adjustable loading on the new item. As standard, the MCR offers a 200 Ohm load, but different pre-assembled phono plugs are supplied, and can be fitted to an additional pair of sockets on the rear panel to give 150, 100 or 50 Ohm loads as well. The MCR has gold plated input, output and loading

justify its price hike over its smaller brother. However, setting up the MCR with the 100 Ohm loading plugs and allowing it a good week of running in, I realised that I need not have worried. This is one exceptional unit.

At this price level, a phono stage needs to really lift the performance obtained above that of more affordable items in order that the extra outlay is justified; this is exactly what I heard from the MCR. For me, one of the reasons I loved the MCI was its low end performance, and the MCR offers this family trait in spades. It goes incredibly deep, unencumbered by any rumble filter, but the way in which it does so is impressive. All too often deep bass from any component can mean a side order of upper bass thickness, or lack of agility, but the MCR brings neither. It simply goes down and down, remaining composed, unruffled, fluid and revealing at all times.

As an example, the bass from Donald Fagen's 'Kamakiriad' was a joy to behold, the MCR able to start and stop in a split second. This was accompanied by a 'roundness' to bass notes which gave them real body, and ensured that they did not slip quietly off into the back of the soundstage when the rest of the instrumentation, or the vocals, struck up. If anything, even more impressive than this is the sheer punch and impact that the Anatek offers. The introductory drum strikes to Abba's 'Soldiers' were as snappy and impactful as I have ever heard them – each strike positively pummeling the air in between me and the loudspeakers – and when the main bassline came along, it slotted perfectly into the rest of the performance, with just the right

"for sheer detail, insight and musicality, the MCR is my personal choice..."

Martyn Hook responded with a loud raspberry in the direction of the old company, and an announcement that he was going it alone. The result was a change in name to Anatek Research, a visual redesign and tweak of the old components and the announcement of a new phono stage.

The MCR, or MC Reference, is the flagship unit for the company,

sockets, plus a nice chunky earth terminal, and tips the scales at 5kg. Measurements are 70x440x300mm.

SOUND QUALITY

Listening to the prototype MCR last year left me with the feeling that it was a definite improvement on the MCI in a couple of key areas, but I was concerned as to whether it could



amount of emphasis.

Across the midband, the MCR generates the type of spatiality, order and emotion that usually involves valves. There's the sort of scale and dimensionality that I have only previously heard from the likes of the Emille Labs KPE-2AS – and that costs half as much again. Whereas many lesser stages spread the instruments nicely out in front of you, making it possible to discern the overall stage width offered by the performance, sometimes placing the players within that space can require a little concentration – not so with the MCR. As an example, I was spinning The Eagles 'Hell Freezes Over' LP – a record I know well – and was a little perturbed that Joe Walsh's vocals and guitars seemed further over to the right in the image than I was used to. This started to concern after a while but a quick viewing of the DVD revealed that this was exactly where he was located during the performance. The MCR placed him perfectly, whereas even my own MCI was a little 'approximate' in this respect. Equally eye-opening was the way in which the MCR pulled Cathy Dennis right out into my room when performing her acappella version of 'Too Many Walls' – every single intake of breath and tremor in her voice discernible. I sat there listening to it spellbound.

At the top of the tree, the MCR is no less accomplished. High frequencies managed to pull off the trick of being both crisp yet fluid at the same time. Initially, swapping

between the MCI and the MCR led me to believe that the MCR was a little softer, but 'Still Pretending' from Tift Merrit's 'Tambourine' album cleared up the issue – basically the MCI seemed almost ever so slightly hard on sibilants which seemed to make things crisper, but swapping to the MCR left me realising that it was offering a more natural presentation; less forced but still incredibly insightful. This was a real bonus with classical music, where the MCR affected an almost disdainful ease as it pulled each instrument into its correct position in the performance, and made sure that there was never any ambiguity in which one was taking on the majority of the work. All the time, though, its sheer musicality and joyful rhythmicity shone through, making the very best of everything I put through it.

CONCLUSION

I believe the Anatek MCR to be a very special phono stage. I had a feeling that it was highly likely to be good, especially given the prototype's performance last year, but wasn't quite prepared for how comprehensively it improves on its smaller sibling. The MCI is a dynamic, spacious and

revealing performer, but it seems that the new 'R has the ability to quietly point out that there's more bass detail to be had here and better image solidity to be found there. The competition at the MCR's £2,000 price point cannot be ignored, as the likes of Icon Audio's PS3 and Naim's Superline are formidable performers, but for sheer detail, insight and spellbinding musicality, the MCR

REFERENCE SYSTEM

- Garrard 301 turntable
- Alphason HR-100S arm (Cardas wired)
- Audio Technica AT-OC9MLII cartridge
- Anatek MC1 phono stage
- Naim SuperNait amplifier
- Ferrograph S1 loudspeakers

VERDICT ●●●●●

Anatek improve on the already formidable MC1 to come up with a phono stage truly worthy of the 'Reference' tag.

Anatek MCR £2,000
Anatek Research
 ☎ +44(0)1273 261229
www.anatek-research.co.uk

FOR

- bass articulation
- tonal richness
- top end transparency
- soundstaging

AGAINST

- stiff competition

MEASURED PERFORMANCE

The MCR has a high gain of x1875 (65dB) so the 0.2mV or so from a typical MC cartridge will be delivered to an amplifier as 375mV or thereabouts – just enough for a modern solid-state amplifier with a low 400mV input sensitivity. Having a high output swing of 13.5V, the Anatek accepts quite a high maximum input of 7mV before overload, and this is more than it is likely to ever see providing a very high output MC meant for MM stages is not used.

Equalisation was correct across the audio band, although a slight slowing of attenuation from the 75uS characteristic results in, effectively, a small treble lift at high frequencies, and considerably more above 20kHz, but since LP goes little higher than 30kHz the MCR's +1dB lift at this frequency is not especially consequential I feel.

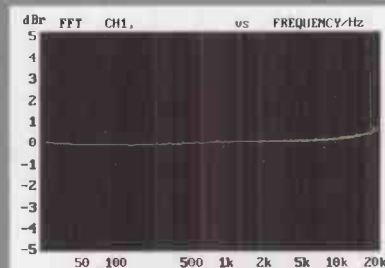
At the low frequency end there is no warp filter to reduce subsonic gain and full gain is maintained right down to 0.5Hz so warps will be amplified. Bass quality should be fulsome though.

Equivalent input noise (IEC A weighted) measured a low 0.08uV so the Anatek is quiet enough to accept the lowest output MCs, like Linns.

The MCR measures well all round. It is very accurate and possesses little noise so will suit all moving coil cartridges. NK

Frequency response	0.5Hz-33kHz
Separation	68dB
Noise (e.i.n.)	-76dBV (0.08uV)
Distortion	0.003%
Gain	x1875 (65dB)
Overload	7mV in / 13V out

FREQUENCY RESPONSE





Naked Ambition

Van Den Hul's high end Canary moving coil cartridge bares all in an attempt to offer the ultimate sound. Noel Keywood gets up close and personal with it!

Stripping a cartridge down to its bare essentials to eradicate colouration caused by resonances in the bodywork is an advanced form of audio paranoia, I used to think. But perhaps not. Van den Hul's naked Canary certainly does have a stark clarity to its sound that seems to reflect its state of undress. Less costs more here though - £3,200!

Our Canary tracked very low and occasionally hit the disc surface, so I had to raise my SME312 slightly to lessen the occurrence (raising VTA slightly in the process). Tracking force is 1.5gms and the body has tapped holes for easy fixing. I used an Emille Labs KPE-2AS valve phono stage through Icon Audio MB845 power amps into Spendor S8e loudspeakers.

SOUND QUALITY

Hit by a solid, perfectly formed bass line opening Amy Winehouse's 'You Know I'm No Good', accompanied by full and fruity sax embellishments from stage left and springing out at me with vigour, I could see straight away what the Canary offers. It's glassily clear, taut as a drum at low frequencies, intricately detailed and informative, yet sets up a capacious sound stage on which Ms Winehouse had a shimmering presence in front of me. The Canary's treble peak gave illumination to leading edges and a hiss to the word "sharp", for example.

Unfortunately, not every record fared so well. Mediocre recordings like U2's 'New Year's Day', even though on newly remastered 200gm vinyl, didn't especially benefit from the

Canary's high frequency emphasis. Yet opening percussion at far left and right sprang out at me on Dire Straits 'Ride Across The River', emphasising stage width and the fast nature of percussive strikes from this cartridge, followed by a good sense of body within the instrument concerned, from maracas to cymbals. There was also vice-like control that came from a lack of colouration, perhaps in the body. In this sense the Canary was a cartridge without colour, overhang or spurious addition. There was no bloom, little sign of smudge or smear or any other blemish, and it sounded almost brutally clear and clean like digital. Yet there was none of digital's sterility or edge, rather a fluidity that only analogue can have, it seems.

Bob Dylan's nasal and gravelly mutterings in 'The Levee's Gonna Break' were perfectly picked out and the big acoustic bass bumbled along beautifully behind him; this album worked fine. Yet the Canary's treble emphasis didn't rest so well on LPs where the cutting engineer had decided to compensate for tracing loss from the antique Shure M3D he's convinced everyone uses.

So here's a specialist moving coil cartridge, but excessive treble and forensic insight combine to make it a great experience with good vinyl only. The Canary justifies its price and its place, but it is for those who understand in advance that such a highly tuned device is a thoroughbred with foibles.

MEASURED PERFORMANCE

Our frequency response trace shows the Canary has a flat midband but treble rises above 5kHz to a massive +7.5dB peak at 18kHz, on outer grooves. The stylus suffers little tracing loss, so the peak lowered to +5dB on inner grooves. This will still emphasise inner groove distortion harmonics, so the Canary won't be kind to poor or bad condition LPs.

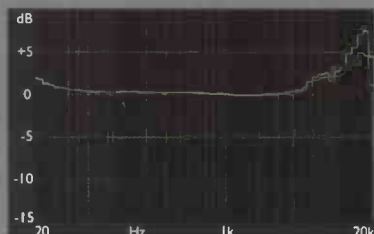
Set to 1.5gms, the maximum recommended and still low for an MC, the Canary tracked well at low frequencies and in the midband, but it could not clear top level torture tracks. The generator yoke rides so low it touches the disc surface at times. Low riding does confer correct VTA however, the Canary measuring at 24 degrees, just above the 22 degree ideal. Distortion on vertical modulation was low, so Left and Right images will be clean but on lateral modulation (central images) it measured 2% against 1% of rivals, and mostly third harmonic which tends to sharpen the sound. Output was healthy at 0.8mV at 5cms/sec rms, higher than Ortofans even, and channel

balance a respectable 29dB.

The Canary will certainly sound bright and fast, but it measures well and should sound good. NK

Tracking force	1.5gms
Weight	8.2gms
Vertical tracking angle	24degrees
Frequency response	20Hz - 12kHz
Channel separation	29dB
Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	22cms/sec.
Distortion (45µm)	
lateral	2.3%
vertical	3.4%
Output (5cms/sec rms)	0.84mV

FREQUENCY RESPONSE



VERDICT

Brightly etched sound, but impressive all the same, this is a highly specialised cartridge for aficionados.

V.D. HUL CANARY £3,200
van den Hul
www.vandenhul.com

FOR

- pristine clarity
- firm bass
- stage depth

AGAINST

- bright balance
- sibilance emphasis
- rides low

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Samsung NEW
New range includes both full 1080p LCD and LED models.



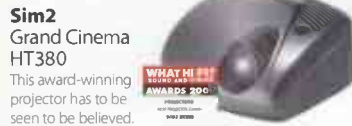
"This new 42" Plasma TV impresses with its convincingly neutral colour palette and deep black tones"

★★★★★ TX-P42X10B APRIL 2009

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Denon

Denon's outstanding range includes the AVR-1903, AVR-2309 and AVR-2809 AV receivers



Sony STR-DA2400ES & BDP-S550 NEW

Highly-acclaimed new AV receiver and Blu-ray disc player from Sony. [What Hi-Fi Group Test Winner - March 2009]



BLU-RAY DISC PLAYERS

Panasonic DMP-BD60 & 80 NEW

These new players from Panasonic blend comprehensive features with top-drawer picture and sound quality.



Denon DVD-2500BT

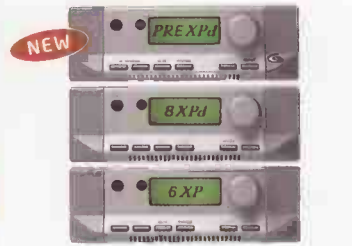
For faithful transmission of Full HD video and HD audio signals bringing out the full quality of film.



HI-FI SEPARATES

Cyrus NEW

Following the remarkable 'Servo Evolution' CD players, Cyrus has introduced a new range of amplifiers. Featuring circuitry developed for its DAC XP, the 8 XP d and Pre XP d include digital inputs - ideal for playing music stored on your computer - while the entry model, 6 XP, is based on the 8 XP but without the digital option. These new models also include two-zone multiroom capability.



The award-winning 'Servo Evolution' CD players - CD6 SE, CD8 SE & CDX t SE



Roksan Kandy K2

Roksan replaces its hugely successful Kandy series with the Kandy K2 amplifier and matching CD player.

Pro-Ject Turntables

Project's excellent range includes the multi award-winning Debut, versions include Debut USB - ideal for converting your favourite tracks to your iPod and Debut colour - available in finishes to suit any decor.



Genie 2

The new Genie 2 is an ideal choice for vinyl lovers on a budget.



Marantz CD6002 & PM6002

This award-winning CD and amplifier from Marantz gives true high-end performance and represents outstanding value for money.



Arcam FMJ Series

Combining sleek design, flexible connectivity and a level of reproduction far beyond that of budget separates systems.

LOUDSPEAKERS

B&W 600 Series

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Radius HD

A new decor matching range of ultra-compact sub/sat speakers replacing the highly acclaimed Radius.



Spendor A5 and A6 NEW

The A5 offers exceptional performance in relation to its compact dimensions. New drive units ensure clear and natural mid-range and beautifully open treble. The A6 utilises technology developed whilst developing the ST loudspeaker with its asymmetrically sculptured tweeter faceplate and refined 18cm bass/mid driver.



Dali Lektor NEW

Dali complements its range with the Lektor 2. Only slightly larger than the award-winning Lektor 1, this new model represents outstanding value.



KEF KHT3005SE

Award-winning 5.1 speaker package available in high gloss black or silver.



Q Acoustics 1010i 5.1

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ALL-IN-ONE SYSTEMS

Denon D-M37DAB

Denon's micro systems are back. This award-winning model, available in silver or black, features a CD player, capable of reading MP3 and WMA discs, a DAB tuner, 30W amplifier and optional SC-M37 speakers.



WHAT HI-FI? BEST OF THE YEAR AWARDS 2008

Arcam Solo Mini

Award-winning integrated CD, Radio and Amplifier with iPod control via optional iLead/rDock.



WHAT HI-FI? BEST OF THE YEAR AWARDS 2008

Teac Reference Series 380

This new three component system's strong feature set includes DAB/DAB+ and WiFi Internet Radio, MP3 playback from CD or via a front-mounted USB socket, an optional iPod dock, high-quality circuitry, tone and balance controls and CD Direct function.



NEW

B&W Zepplin

This award-winning iPod docking station ticks all the boxes: it's beautiful, solid as a rock and sounds amazing!



WHAT HI-FI? BEST OF THE YEAR AWARDS 2008

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Sonos

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WHAT HI-FI? BEST OF THE YEAR AWARDS 2008

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DENON DVD-2500BT

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OR LESS! - Visit www.SSAV.com

PANASONIC DMP-BD35

BLU-RAY DISC PLAYER
£199

OR LESS! - Visit www.SSAV.com

PIONEER BDP-51FD

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DENON AVR-1909

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SONY

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Look Sharp

Thirty years after its introduction, Michell's Focus One is finally joining the ranks of the Borehamwood company's many legendary turntables, says David Price...



Nearly fifty years after the company's original inception, the Michell Engineering story is well told - those beautiful designs, the inspiration for them and the connections with the film industry. Now in 2009, Michell Engineering is going from strength to strength with a highly impressive range based on the GyroDec platform, originally launched in 1981, when it was decades ahead of its time.

To Michell aficionados such as myself, of course the GyroDec is the quintessential John Michell design, inspired - as legend has it - by the spaceship in Stanley Kubrick's '2001: A Space Odyssey'. It was a breathtaking design when launched, but an expensive one - retailing for over twice the price of a Linn LP12 back then, and far more in real terms than its £1,275 purchase price is now.

For those who didn't have the sizeable sum of money needed to purchase a Gyro, Michell offered the Focus. On sale since 1978, the Focus was initially available as a separate motor unit for £100, and had the option of the Focus Arm for £60. A simple belt drive design compact in dimensions (430x376x152mm), it

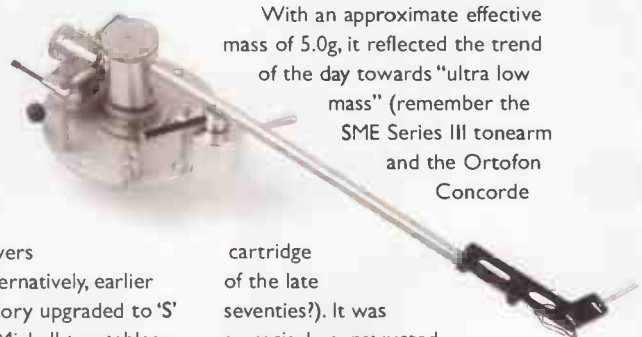
eschewed an independent subchassis for a Rega-style one piece plinth with unusual coiled spring isolation feet. The large, torquey motor was mounted on its own decoupled board, and drove a one piece, fairly lightweight (2.1kg) aluminium platter via a long rubber belt.

Despite the fact that the Focus wasn't a conspicuously 'massive' construction, the drive system delivered impressive speed stability, although it did take a few seconds to stabilise upon switch on. The platter came topped by a beautiful maroon suede mat, which damped resonances well. The only caveat is that on early decks motor noise could intrude slightly. The later Focus One 'S' had the modified motor board which eliminates the problem, and is the version buyers should go for. Alternatively, earlier decks can be factory upgraded to 'S' spec. As with all Michell turntables, the bearing assembly was a highly tolerated precision affair with an easily replaceable ball bearing. Again, this made for low levels of rumble

and wow and flutter - especially when running a modern 0W40 fully synthetic oil (such as Mobil One, as used in the GyroDec). The rudimentary suspension system via four sprung feet, provided surprisingly good vibration resistance.

Whilst the Focus was bought as a standalone motor unit (sometimes being partnered with an SME 3009S2 or later a Linn LVX+ tonearm), the fact that it was so often sold as an integrated turntable with the Focus arm speaks volumes about the quality of the latter item. Indeed the Michell unipivot is, for this writer, easily the most interesting aspect of the deck...

With an approximate effective mass of 5.0g, it reflected the trend of the day towards "ultra low mass" (remember the SME Series III tonearm and the Ortofon Concorde



cartridge of the late seventies?). It was a precisely constructed affair boasting excellent geometric accuracy (as you might expect from something from the 'pen' of the late John Michell) and



came with a host of fine adjustments (angle, overhang, height, tilt, damping) unusual in an arm of this price.

There are a number of clever features which later tonearms echoed - for example, Naim's ARO echoes its unipivot orientation, resonance reducing double skinned arm tube and low centre of gravity counterweight, while SME's Series V shares its rigid low mass magnesium headshell, silicon fluid damping and fine VTA and overhang adjustment. In its day, the Michell Focus Arm was a truly state of the art affair. Best with lower mass, higher compliance moving magnet cartridges (25-40cu), this is not an ideal partner for modern moving coils, but sings with the likes of Goldring's G1042 MM.

SOUND QUALITY

Fitted with the aforementioned high quality moving magnet, the Michell

Focus One/ Focus Arm offers quite a fascinating sound. It is so conspicuously *not* a modern machine - being warmer, sweeter and bouncier than the latest Rega P3-24, for example, and sports a wonderfully musical sound that's quite hard to characterise. The turntable unit seems to give a slightly rounded and euphonic colouration, with a pleasant upper bass bloom allied to Michell's characteristically wide open and spacious midband. Treble is sweet but not incisive. The Focus arm adds seductive musicality - there's nothing like a decent unipivot if you're in a mellow mood, as the sound swells gently around you and pulls you in. Contrast this to a modern Rega (an excellent example of 2009 analogue engineering) and the latter almost sounds like listening to a CD player, being tidier, more detailed yet rather mechanical and emotionally uncommitted. The Michell Focus package is smooth and musical, almost to a fault - and gets to the heart of the music in a

typically 'analogue' fashion. Music just ebbs and flows...

Ten years ago, the Focus was practically forgotten, but now prices are beginning to rise - although nowhere near to the extent of the earlier Hydraulic Reference designs - yet. Lucky individuals can find them in junk shops for under £100 once in a blue moon, but the market price for a really good unmolested, fully working example with original Focus Arm is now heading towards £300. This is still cheap considering the decks are very long lasting, easily serviceable by DIYers (they're just like a Meccano kit - you can strip, clean and reassemble them in a matter of an hour or two), and can of course be returned home to Michell Engineering for a full overhaul for a modest sum. The Focus Arm can even be very effectively rewired by specialists such as Audio Origami (tel: +44 (0)141 954 3794, email audioorigami@gmail.com).

There are few affordable classic turntables around now, and even fewer which are so easily serviceable, so pleasant to use, so charming to listen to and so historically important to collectors, as the Michell Focus One. So buy one while you can still find one!

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Ring Tones

Gone are the days when the closest mobile phones could come to music was a cheesy polyphonic rendition of the 'Crazy Frog'. The latest generation come with surprisingly advanced music playback functionality; enough to put some purpose-designed MP3 players to shame. Steve Green tries two new Nokias...



NOKIA 5800 XPRESS MUSIC

This is the Finnish giant's first smartphone to sport a touch-screen user interface. The 5800 also has strong multimedia support, in particular for music; so this is Nokia's first response to the threat posed by the iPhone.

The touch-screen was very easy to use, and it was far faster to navigate around the phone than it is to use traditionally designed mobiles. The touch buttons and icons used for navigation were typically quite large, so it was easy to select items using a fingertip without having to resort to using the stylus. Lists were also easy to traverse by dragging a scrollbar with a fingertip, web pages could be dragged up or down, and photos could be flicked through easily. The display itself was also excellent, as the icons, touch buttons and text were all superbly rendered and very attractive. The display was nice, bright and it had a good level of contrast. And the phone uses an accelerometer to rotate the display according to which way up the phone was facing. The interface was also quick to respond to button presses, which couldn't always be said for the N96...

"audio quality was a pleasant surprise..."

The only negative thing to say about the operation of the 5800 was that web browsing using the touch-screen was sometimes a bit fiddly using a fingertip, because the links to be pressed were small, so it was sometimes necessary to resort to using the stylus. The web browser itself could also have been better designed, because it sometimes didn't do the things that you wanted or expected it to do. It was very quick

and easy to type in website addresses – and text messages – using the excellent touch-screen qwerty keyboard, though.

The phone provided a dedicated touch button at the top of the screen to bring up a media bar, which provided instant access to your music collection, photos, videos and the Internet. The music player's interface was excellent, as the design was very attractive, and it was similar to the user-interfaces found on some high end dedicated MP3 players. Music files were arranged via artist, album, genre or composer, and there were also categories for playlists and podcasts. The phone supports the MP3, AAC, AAC+/eAAC+ and WMA audio formats, along with the MPEG-4 SP, MPEG-4 H.264 and WMV9 video formats. Storage consisted of a supplied 8 GB MicroSD card that slots into the side of the phone, and allows expansion to 16GB.

Another of the main attractions of the 5800 was that it had the BBC iPlayer widget pre-installed, which allows streaming of TV and radio programmes, and TV programmes can be downloaded. The generic 5800 unit I reviewed couldn't download TV programmes, as a firmware upgrade hadn't been released for it yet, but other 5800 models using the latest firmware apparently can download TV programmes on the

or on some of the best, dedicated MP3 players I've used. The 5800's large 3.2" widescreen 640x360 pixel display is good if you want to watch longer TV programmes, though.

As the 5800 is the first phone to use the new 5th edition of the Symbian S60 software, which has been released to support touch-screens, unfortunately none of the Internet radio applications I'm aware of that are available for older S60 editions have been updated yet. The mobile version of Real Player was installed on both the 5800 and the N96, though – it's Real Player that handles the decoding for the iPlayer streams – so it was possible to listen to the BBC's live radio stations via 3G/3.5G or via Wi-Fi. Reliability when streaming via 3G/3.5G was coverage and therefore network-dependent, as I found the reliability to be good on 3's network, but it was a bit patchy on Orange. 3G/3.5G coverage should improve on all networks over time, though. The 5800 also includes an FM tuner, but this was rather insensitive, as all but the strongest FM signals were quite hissy.

Some of the other main features included are email support; audio and video recording; a 3.2 megapixel camera with Carl Zeiss optics with auto-focus and dual LED flash; Flash Lite 3.0 video support; a micro USB socket for transferring files to/from PC; a standard headphone jack and stereo speakers; Bluetooth stereo audio streaming; TV out; Nokia Maps 2.0 and assisted GPS.

Audio quality on the 5800 was a very pleasant surprise. The sound was well defined and had a neutral tonal balance, and better quality tracks were very good indeed. The 5800's sound didn't quite match up to the highly detailed sound on the N96, but it was very pleasant to listen to, nonetheless. The 5800 also coped well when playing more demanding material, such as tracks with loud

iPlayer. The BBC restricts access to the iPlayer via Wi-Fi only for some reason, whereas the N96 can access the iPlayer via 3G/3.5G as well. The picture quality of iPlayer TV streams was reasonable for watching on mobiles, but the audio quality of the radio streams was somewhat disappointing. The picture quality was reasonably good on better quality video files and when viewing photos, but it wasn't as sharp as on the N96

electric guitars playing, although the N96 also had the edge here as well. To gauge the 5800's quality, it was certainly better than on the iPod, but it wasn't as good as on some of the best MP3 players I've heard.

It was the 5800's touch-screen that bowled me over, though, and combining that with its multimedia capabilities and it being free on much cheaper contracts than the N96, the 5800 is simply an irresistible bit of kit.

NOKIA N96

Nokia's high-end smartphone successor to the N95, the N96 has been built very much with audio and video in mind, as it includes music and video players with as high a specification as you would find on dedicated devices, and the phone has 16GB of memory built-in, which is expandable to 32GB via a microSD card. The N96 comes with the BBC iPlayer and Nokia Internet Radio applications pre-installed, and it has a DVB-H mobile TV receiver built-in as well.

The N96 uses a dual sliding mechanism, where the upper half of the phone can be slid upwards to expose the alphanumeric keypad, or downwards to expose keys that control audio/video playback when holding the phone on its side. The main control panel also includes keys to control multimedia playback, along with the main directional navigation key, a key to go directly to the S60 menu, and one to bring up the multimedia menu, which provides quick access to TV and video, music and radio, photos, N-Gage games, Nokia Maps, Internet bookmarks, and contacts. The N96 also uses an accelerometer to rotate the screen depending on which way up the phone is facing.

The N96's alphanumeric keypad allowed text to be typed in quickly, although it was no match for the 5800's touch-screen qwerty keyboard, and in general it was far faster and easier to operate the 5800 due to its use of a touch-screen user-interface – once you've used a phone with a good touch-screen, you really don't want to go back to ones where you have to press lots of buttons.

Both phones received the same iPlayer TV and radio streams via Wi-Fi, and both can download TV programmes via Wi-Fi to store on the phone for later viewing (although the 5800 device I reviewed couldn't download – see the note about this on the 5800 review). One significant advantage that the N96 has over the 5800 though, is that it allows iPlayer streams to be received via 3G/3.5G (HSDPA) or Wi-Fi, whereas the BBC

restricts 5800 owners to accessing the iPlayer via Wi-Fi only.

The picture quality of iPlayer TV streams was adequate for viewing on a mobile, but it was nothing to write home about. Watching the same TV programme on both phones side-by-side showed that the N96 clearly had the superior quality screen, because its picture was significantly sharper, and this was true when watching other videos as well. However, the size of the picture on the 5800's 3.2" widescreen was much larger than on the N96's 2.8" (320 x 240 pixels) screen, so it would be easier to watch longer programmes on the 5800.

Unfortunately, the BBC is still using the Real G2 audio codec at low bit rate levels for the listen again radio streams, so the sound quality wasn't very good on either phone. Hopefully the quality of these will improve in the not too distant future. Higher quality radio is available on the N96, though, as it has the Nokia Internet Radio application pre-installed. I'd estimate that there are around a thousand or so Internet radio stations listed, many of which are using MP3 at reasonable bitrates, which are best suited to streaming via Wi-Fi, and there are plenty of lower bit rate streams available for when reception is via 3G/3.5G. Podcasts were also supported. There was also an FM tuner, which was better than the one on the 5800, but it still wasn't particularly sensitive, so some stations were a little hissy.

The N96 also has a DVB-H mobile TV receiver built-in. There are no DVB-H transmissions in the UK, although the last time I heard there were still plans to launch it. However, I'm doubtful that DVB-H will now launch in the UK, simply because I doubt very many people would pay a subscription to receive live TV when on-demand TV and radio will be freely available on a wide range of devices via the iPlayer.

The music player supported the MP3, AAC, AAC+/eAAC+ and WMA audio formats. The interface on the music player was very similar to that on the 5800, so it had the same intuitive menu structure and attractive design, and displayed album art. On the video side, the MPEG4-SP, MPEG4 H.264 and WMV video formats were supported.

Just to list a few of the other main features on the N96: it runs Symbian S60 3rd edition Feature Pack 2 software; it supports email, N-Gage games, the Nokia Music Store, and there's a 'Comes with Music' Edition available; it has a 5 megapixel camera with Carl Zeiss optics, dual LED

flash, and pictures are automatically geo-tagged with position information provided by assisted GPS; it has Nokia Maps 2.0, Bluetooth stereo audio streaming, Flash Lite 3.0, a dishwasher, cuddly toy; it can record audio and video; you can watch YouTube videos; it has a 3.5mm headphone socket and stereo speakers and a fair few other things besides. The N96 also has a very good battery life, but one negative point was that the user-interface was occasionally a little sluggish.

Sound quality on the N96 was superb. Highly detailed, it had a nice spacious soundstage, with instruments being very well separated, and vocals in particular shone out. Even on tracks that are complex to playback, and where many MP3 players come unstuck, the N96 clung on very well, albeit that there was a little loss of clarity with the most demanding material. Overall, though, the N96's sound quality was up there with that of the best dedicated MP3 players, although Cowon's and Sony's best players still just have the edge; but the difference is small. Compared to the iPod, and especially the iPhone, the N96's sound quality was simply a class apart.

Overall, you cannot fail to be impressed by a device that packs in as much hi-tech gadgetry as the N96 does, and the fact that it offers excellent audio quality was just the icing on the cake. However, its successor – the N97 – is apparently due out in the summer, and that looks set to combine all of the features on the N96 with a touch-screen, so I'd be inclined to wait for that!



VERDICT ●●●●●£

The Nokia 5800's touch-screen was a joy to use, it's relatively cheap and provides good multimedia capabilities.

NOKIA 5800 XPRESS
MUSIC £249
 Nokia Corporation
 ☎ +44 (0)207 462 3580
 www.nokia.co.uk

- FOR**
- touch-screen interface
 - good multimedia support
 - reasonably priced

- AGAINST**
- poor web browser
 - insensitive FM tuner

VERDICT ●●●●●

The Nokia N96 packs in an incredible array of hi-tech gadgetry, and it even manages to provide superb audio quality as well.

NOKIA N96 £400
 Nokia Corporation
 ☎ +44 (0)207 462 3580
 www.nokia.co.uk

- FOR**
- superb audio quality
 - huge feature list
 - iPlayer 3G support

- AGAINST**
- no touch-screen
 - insensitive FM tuner



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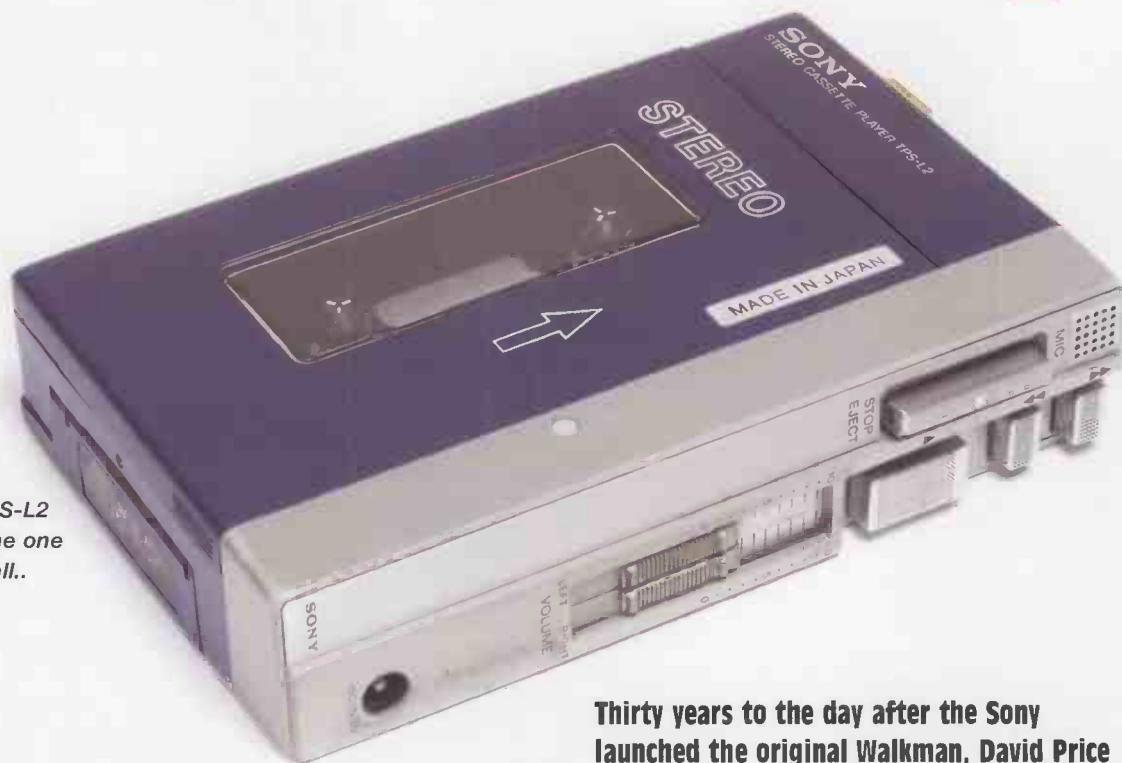
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Walk This Way!



1979's Sony TPS-L2 'Stowaway' - the one that started it all..

Thirty years to the day after the Sony launched the original Walkman, David Price pens a paean of praise for the little personal cassette stereo that changed the world...

The way that most cultural commentators talk about the iPod, you'd think that Apple had not just invented the small music portable, but the concept of music on the move itself. Such has been the inexorable rise of the polycarbonate peril, fuelled by a tidal wave of hype that's surely unprecedented in modern marketing, that Jonathan Ives' little music machine is *de rigueur* for

as if there had never been anything before it - good, bad or indifferent. Lest we forget however, there was something before it - something altogether more important in the great scheme of things, because the Sony Walkman wasn't just a portable music machine, but popularised an entirely new way of listening to music - on the move.

Rewind back to the nineteen eighties, and the small Sony was

was an enormous product, a massive global cultural phenomenon and so ubiquitous that you could safely add it along with "death and taxes" to Benjamin Franklin's list of the only things in life to be certain of.

Importantly however, and unlike the iPod in my view, the Walkman warrants inclusion in a serious hi-fi magazine such as this because of its quality. Looking back at the models that Sony was routinely selling at affordable prices in the eighties and nineties, the build quality is striking by today's standards. Proudly 'Made In Japan', most eighties Sony Walkmen (if that's the correct collective noun?), beat noughties Chinese built Apple iPods into a cocked hat for the quality of their mechanisms, the precision of their alignment and the sleekness of finish - and then there's the sound quality, which is on an altogether higher level.

Of course, not every Walkman was a high watermark for the breed, but considering the dizzying number of models over the twenty year lifespan of Sony's little personal cassette player, standards were generally very impressive - with several notable models, which we'll examine later, being breathtaking.

"in the glory days of Akio Morita's company, Sony cassette portables were the best made, best engineered and best sounding, as well as being the most versatile and easy to use..."

anyone who considers themselves 'cool', 'chic' or 'street'...

Even more surprisingly, the iPod seems to have destroyed the memory of everything that came before it, in its wake. The way your average Sunday supplement hack writes about Apple's little gadget, it's

absolutely ubiquitous. So much so that it named a whole genre of product. Nowadays, if you have a Samsung MP3 player, you don't call it "my iPod", but twenty years ago, your small personal cassette player made by anybody from Saisho to Sanyo was indeed "my walkman". The Walkman

Properly set up, the top Sonys were second to only high end open reel and vinyl sonically, delivering a body blow to *any* digital sources. Those who dismiss them don't know what they're missing.

LEADER TAPE

Whilst Japanese companies might all look a little uniform - bland even - viewed from afar, it's important to understand how different they are under the skin. Most are consummately professional consumer goods manufacturers, making products perceived to be what the public wants, and run reliably, responsibly and predictably by committee. Some however, have shown themselves to be innovating, engineering-led companies who make clever (and often great) things because they can, and only then seek to sell them. In the car world, Honda was always the archetypal example of this, and their direct equivalent in consumer electronics was Sony.

To understand how the Walkman story started, it's important to know the man behind it - Akio Morita. Sony was founded in 1946 as the Tokyo Telecommunications Engineering Corporation by Morita and Masaru Ibuka, but Morita was the creative force behind it. Initially focusing on manufacturing affordable tape recorders, he then became one of the very first people to realise the possibilities of the newly arrived solid-state technology in the early sixties. In his book, 'Made in Japan', Morita explains how the American and British consumer electronics giants simply didn't 'get' why anyone would want a small transistor radio or tape recorder, as he recounts troublesome early sales trips to the United States trying to persuade blinkered US dealers to take on his products...

In 1960 Sony produced the first transistor television in the world, and soon after introduced their first cassette player, which was made under licence from Philips. Unusually, it was larger than the Philips original, but considerably better made, which was a portent of things to come. The company then introduced a range of excellent hi-fi cassette decks, as well as launching a new tape based format called 'Elcaset' in 1974 which offered the sonics of high end open reel in a cassette a little smaller than a VHS video. It was a typical Sony 'heroic failure' - a great high end format for which the company never managed to find a demand.

In 1978, Morita instructed one of his top audio engineers Nobutoshi Kihara to make a small hi-fi stereo

cassette player so that he could listen to operas during his many international aeroplane flights, and the first Walkman was born. The TPS-L2 [main picture, left] duly hit the market one year later, thirty years ago this month, and was called 'Walkman' in Japan, 'Soundabout' in the US and 'Stowaway' in the UK. Legend has it that Morita initially hated the 'Walkman' name, but marketing material had already been made and it was too expensive to change! There are various claims made as to who invented the concept of the Walkman, but suffice to say that even if Sony didn't originate it *per se*, it certainly productionised the machine and brought it to market in a way none other did.

What's fascinating is how little the basic engineering changed over the life of the model. The TPS-L2 was the blueprint for the breed and whilst cosmetics were regularly changed, and various features added (or even removed), the basic object stayed almost the same all through the years. The original blue-and-silver model was actually little more than a Sony TCM-600 mono cassette recorder, made for reporters and businessmen, which when launched in 1978 was the smallest cassette recorder on the market. In TPS-L2 guise, its high quality transport came in a small aluminium case, with no speaker but with a beefy headphone output stage capable of driving two sets of headphones at the same time (for which there were two 3.5mm minijacks). There was even a 'hotline' button which partly muted the music and let the listeners talk to one another! Unsurprisingly the twin outputs and 'hotline' feature were phased out on the next Walkman II model...

What was so impressive about the TPS-L2 was its sound quality. Given a good quality cassette recorded on a high end deck, it was capable of superb fidelity, far in excess of what the latest generation of Apple iPods are able to achieve. Clean, punchy yet wonderfully musical, rich in tonal colour and sharp and stable in the treble, this £95 machine was a revelation. Importantly, the 'Stowaway' was also supplied with good sounding lightweight headphones - unlike the awful earbud types now routinely dispensed with MP3 players.

GOLDEN YEARS

What followed was the most popular Walkman ever - 1981's WM-2 - which introduced the original Walkman logo that was to be seen on so many machines for so many

years. It was a smaller, cassette-sized design with a single headphone socket and a tone switch, which soon became a 'metal' tape switch on the subsequent WM-3. The finest of the WM-2 derivatives was the mid-eighties WM-DC2. This model used a quartz lock system for the Disc Drive motor and also included Dolby B and C noise reduction. The WM-DD and WM-DD2 used a similar mechanism to the WM-2 but included a Disc Drive capstan motor that improved the speed stability to that expected of a decent home cassette deck. The WM-DD2 also had Dolby B NR. A similar Disc Drive mechanism was used in the WM-F5, the first splash-proof "Sports Walkman".

Fine as the DC and DD variants were, surely the greatest evolution of the species was the WM-D6C - the so-called 'Walkman Professional'. A large, brick-like thing compared to lesser walkies, at 180x90x40mm it was designed for broadcast use, ostensibly to replace Uher Report 4000 open reels, and featured a beautifully finished graphite black metallised case. Mechanically it was loosely based on the TPS-L2 but with many changes and improvements, such as Dolby noise reduction (original D6 versions had Dolby B only, but Dolby C was added soon after to the D6C variant). Quartz locked Disc Drive and a Laser Amorphous record/replay head explained the unit's excellent measured performance, which was second only to a Nakamichi ZX-9 at the time, and subjectively the Walkman Pro arguably sounded even better, with a very bouncy and musical sound compared to the Nakamichi's somewhat clinical perfection. A brilliant audiophile cassette recorder, it stayed in production for nearly twenty years and is sorely missed by 'tape heads'.

Whilst the Walkman Pro garnered all the glory, round about the same time in 1985, Sony launched a cracking machine at the other end of the price scale. The WM-22 was a budget model which offered outstanding performance for under



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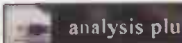
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BUYING

Tim Jarman's top tips for the aspiring Walkman collector...

If you would like a cassette Walkman you are in luck, millions were sold and they are still easy to find. The finest is undoubtedly the WM-D6C. This model enjoyed a long production life and there are plenty around. The sound and build quality are first class and they have the added advantage of the ability to record, making it easy to build up a library of quality recordings to listen to.

The original TPS-L2 and WM-3 are also worth seeking out; when in good condition they give very pleasing results. Being the original personal stereo they also have integrity and an authenticity that no other can match. The WM-2 and its many derivatives (all recognisable by the distinctive layout of the tape transport keys) are attractive and in Disc Drive guise are as good a personal stereo as you will find. Beware though if the machine makes a cyclic knocking or ticking noise. This common fault, caused by the fracturing of a plastic gear inside, is difficult to resolve as the parts needed to repair it are no longer available from Sony.

As an introduction to Walkman listening, the simple WM-22 is hard to beat. It combines great sound with simplicity and stability. Generally with all Walkmans the simple, well built models are the ones to go for. The very small or very complicated ones don't always work that well, especially when they are a few years old or more and have had a hard life with their previous owner (as most have).

Once you have a Walkman there are a few simple things that you can do to get the best out of it. A new set of belts can work wonders, as can setting the speed and head azimuth up accurately - needless to say a thorough dusting, head clean and demagnetisation helps too. The easiest upgrade however is a new set of headphones, the original ones were never that good and Sennheiser's PX100 (£30) works a treat with every one of them.

£30. The WM-24 and WM-25 added Dolby B NR to the basic WM-22 design, and came in a variety of colours. Despite its somewhat plasticky construction, this little unit offered staggering sound considering its price, with a very musically enjoyable yet stable character and an extended frequency response - and it even came with a decent set of headphones.

Of course, Sony made a dizzying variety of walkies, some of which may not have been so special sounding but which were notable for other reasons. The WM-7 of 1982 was the most complex playback-only Walkman, and was the first to have logic controls and a simple remote control unit built into the headphone lead. The WM-10 was the smallest ever cassette Walkman, the case had to be slid open to make it large enough to take a cassette. The WM-F10 included an FM stereo radio as well in the same sized package! The WM-F107 Solar Walkman was a technical *tour-de-force*. The solar panel could run the radio section directly or charge up a built-in rechargeable battery that could power the tape deck, which was of the highest quality. As a Sports model it was also splash proof.

TAPE END

The nineteen eighties were the heyday of the Walkman, with the emergence of DAT and then MiniDisc causing Sony to shift its corporate focus to other formats, whilst the momentary explosion in the popularity of portable CD players (i.e. the 'Discman') in the early nineties took the sheen off Sony's flagship Walkman products. Still, the company did continue the line, and made some memorable products, including 1989's WM-DD9 for the tenth anniversary of the breed, which was the only two motor quartz locked, Disc Drive auto-reverse Walkman ever made, and sported an amorphous tape head, gold plated headphone jack and 2mm thick aluminum body. Needless to say it's one of the most collectable...

By the Walkman's fifteenth anniversary, Sony was making very small, slick machines such as the WM-EX670, featuring all metal bodies, barely bigger than a cassette itself, slick logic controlled auto-reverse transports and remote control. Costing around £100 at the time, the precision with which they were built was still very impressive, as was the sound - even if it wasn't the equal of the great DD models. Unfortunately, the retirement of Akio Morita in 1994 saw a change of style at Sony,

and the cassette Walkman didn't survive for long.

The Walkman name now lives on, found on digital portables which - sonically at least - are a pale shadow of the quality available from a good middle-market cassette model. All the more depressing is that, despite not being so strong sonically, Sony digital portables such as the NW-A818 are still leagues ahead in the sound quality stakes of the Apple iPod, which now dominates the portable market just as the cassette Walkman once did. In the glory days of Akio Morita's company, Sony cassette portables were the best made, best engineered and best sounding, as well as being the most versatile and easy to use. Nowadays, it's only the last of these boasts that the Apple iPod can claim, yet its domination is just as strong as the Walkman's once was.

Thanks to Tim Jarman of Walkman Central (www.walkmancentral.com) for his help in the production of this article.

DID YOU KNOW?

The first Walkman was a descendant of Sony's TC50, an early miniature recorder famous for its use in the NASA Apollo space missions and is the first (and possibly the only) cassette recorder to have been used on the moon!



Sony's entire Walkman range is a direct and close descendant of this, the TC50 tape recorder!

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47 Labs Flatfish MKII Transport S/H	3020	1550	Wilson Audio System 8 obsidian black S/H	23998	13999
47 Labs Progression DAC x-demo	2270	1299			
47 labs Gemini Progression dual mono DAC x-demo			Cables and Accessories		
47 Labs PiTracer Transport x-demo	18000	9999	Attacama Equinox 3 tier stand x-demo	375	199
Audio Research CD7 Black S/H	7698	5999	Cardas Cables Golden Cross 3m Bi wire speaker cables	1999	999
Krell Evolution 505 cd/sacd xdemo	8598	6875	Cardas Cables Golden Power Cord 33inch UK-IEC mains	325	162
Krell Showcase DVD x-demo	3698	1999	Cardas Cables Golden Cross 6m set of RCA interconnects	2830	1415
Orpheus Zero CD Player S/H	4600	1599	Cardas Cables Neutral Reference 1m RCA-BNC S/H	450	199
Orelle CD100EVO S/H	1500	695	Creek OBH10 SE Remote Volume BNIB	199	99
Reimyo CDT/DAP 777 2 box player S/H	9250	4999	Densen De-magic	10	5
Theta Pro Basic II DAC with Oscom/Balanced S/H	2990	499	Electrocompaniet ECS1 M6 feet x4 BNIB	189	49
			Cogan Hall Intermezzo EMD 0.75m RCA S/H	N/A	99
Analogue			Eichmann Express 4 interconnects BNIB	80	49
47 labs MCBees xdemo	1000	650	Finite Elemente Resonator BNIB	320	225
Benz Micro Ref II Silver MC Cartridge S/H	1500	349	Finite Elemente Segment X \$ tier Stand X-demo	500	290
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Koetsu MCR-1 Transformer S/H	2666	1399	JPS Digital AC 2M Shuko-IEC mains cable S/H	349	129
Mark Levinson No320s Phono Module x-demo	995	649	Madrigal MDC1 1m AES/EBU 110 ohm Digital Cable S/H	420	199
Roksan Xerxes SE Power Supply	1100	879	Ringmat 330 MKII XLR Support system BNIB	135	79
Roksan Xerxes Standard Power Supply	800	640	Ringmat Feet set 3 BNIB	68	30
			Siltech HF9 AES/EBU 1m Digital S/H	420	199
Preamplifiers			Spectral MI-350 20ft interconnect S/H	2100	899
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Conrad Johnson PV15 with Phono Stage S/H	3250	1995	Tuners & Tape decks, power supplies		
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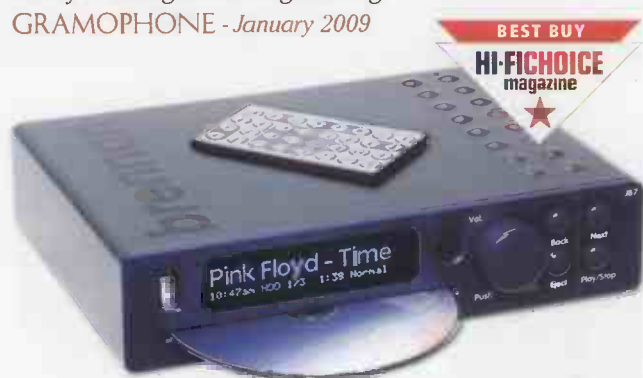
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INCATECH CLAYMORE, good condition £200 ono. Pioneer SA 608 amplifier £150 ono. Leak Stereo 70, £50 ono. Naim Nait 1 + cables £375. Quad 33/03, £175 ono. Tel: 07810 103 908

MORDAUNT SHORT MS309 sub woofer 150 watt. As new, £180 ono. Tel: Laurence 07732 980 550 (Bucks)

NAIM CD5i CD Player, £620. Naim Nait 5i amplifier, £520. 2 months old. 5 year warranty. Original packaging. Dynaudio Audience 42 speakers, £220. Tel: 07900 866 232 (Yorkshire)

SONY CDPXE900E Compact Disc player with remote control, £30. JVC KD-A5 stereo cassette deck £30. Tel: Alan 01268 750 744 (Benfleet, Essex)

TECHNICS SLP770 CD Player, £65. Armstrong 525 amplifier, £40. Leak Stereophetic FM tuner, £40. Mission 700LE speakers, £50. Sound Organisation T/T wall shelf, £25. Pioneer PL112 T/T, £40. Tel: 01708 457 691

WANTED: MARANTZ ST6001 FM tuner in good condition, with manual. Must be black. Will pay good price or swap for Denon TU1800 DAB. Tel: 0117 965 0311 (Bristol)

MICHELL TECNOARM £325. Isotek mini sub G11, £325. Clearaudio Basic Symmetry MC phono stage £325. All with boxes, instructions. Mint order. Tel: 01474 326 220

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MUSICAL FIDELITY The Preamp II, MM/MC, phono, tape loop, CD, Aux, £50. Musical Fidelity P170 power-amp, £100. Sony CDPXE330 CD player £20. Buyer collects. Tel: 01277 841493 evenings (Essex)

HADCOCK GH228 tonearm. Formula 4 tonearm. For more information phone Ray 0161 643 2871 Manchester

LP12 CIRKUS bearing, Armagedon, Naim Aro, £1490. BBC LS3/1 speakers, Parmico dual concentric drive units. Original components. Offers invited. SME 12" arm. Thorens TD125 SME plinth. Offers invited. Tel: 01387 830 169

QUAD 405-2 power amp Late grey excellent working order and condition £280 ONO Mobile No: 07502009541 Tyrone

KEF ELECTRONICS Limited T27 HF tweeters. One pair only. 4-8 ohms, £45. Sony tuner ST-88 upright, wood cased, AM/FM £15. Armstrong 521 amp, unknown fault - free to collector. Tel: 07807 149857

PS AUDIO Trio A100 power amp, 200 watts per channel. Four months old. Hardly used. Includes Chord interconnects and Russ Andrews Powercord. Still boxed. A bargain at £400 ono. Tel: 01945 463 856

SUGDEN A21A integrated £400. Audio-Technica AT110E cartridge £10. Mobile Fidelity Geo-Disc £25. Hi-Fi News test record £15. C.A.D. speaker cable bi-wire, 2m, £40. Tel 01306 887 554 or 07852 386 988

MUSICAL FIDELITY A3.2 amplifier. 115watts per channel. MC/MM. Excellent condition. Boxed. £385. Tel: 01275 462 948 (North Somerset)

CELESTION DITTON 44 loudspeakers. Large 1970s 3 way design. All drivers good except one tweeter which produces no sound. Cabinets painted white £80. Buyer collects (Bristol). John 07840 533014

ROGERS STUDIO 9, black ash, no grills. Cyrus AV5 Decoder. Collect only (Tunbridge Wells). Offers to richardhantcliff@btinternet.com or 01892 54468

NAKAMICHI 680ZX 3 head cassette deck £150.00. Pioneer PD 6700 compact disc player £50.00 A&R Cambridge T21 FM Tuner Teak finish Immaculate cond. £30.00 QED Phono/phono interconnect lead £5.00. IXOS 104 OFC Phono/phono interconnect lead £10.00. Naim NAC A4 speaker cable 5 Mtr pair £20.00 Naim NAC A4 speaker cable 10 Mtr pair £40.00 Telephone 01228 544376

PROAC SUDIO 1.25 in Cherry excelent condition about 3 years old located in Chester can deliver to north or south manchester £495 TEL 07975818979

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QUAD 303 amplifier original circuit boards and power transistor set, good condition, suitable for restoration project etc., £25, tel: (01403) 255153 (West Sussex) or email: richermail@aol.com

SPEAKER CABLE Linn K20 2 X 2.3m £15 P&P £4 USA £8 Talk 4.1 2X 4.3m £8 P&P £5 USA £15 Gale Hyper Latz 255 2X 5m £10 P&P £3 USA £8 01090 730 681 07783 327 689

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FOR SALE: Chord Indigo Interconnects, 1 metre RCA, £550. No longer using DAB and have now returned to my Quad Tuner Therefore surplus to requirements. Excellent Sound! Tel: 01663 741478

APOGEE DUETTA Signature speakers for sale. VGC. Taupe finish, some boxes. New Graz mid ribbons. Exquisite sound, £1900 ovno. Coventry. Tel. 01926 653421 supremedalek@tiscali.co.uk

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PASS LABS x-600 mono amps VGC. Silver finish. Cost £16000 seeking £6000. One of the finest amps available. Coventry. Tel. 01926 653421 supremedalek@tiscali.co.uk

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WILSON SYSTEM 5.1 (Watt/ Puppy). Cost £15000 seeking £5900. Crates, vgc. Gloss black finish. Coventry. Tel. 01926 653421 supremedalek@tiscali.co.uk

SHANLING CDT 80 valve cd player 2 years old immaculate hardly used £300 ono £650 new contact rich 07751537148 Banbury Oxon

PAIR OF Wharfedale corner units W4 12" bass, twin mid, vertical tweeter, big magnets aluminium chassis, very deep bass, 15 ohm suit valves, offers. 07719880649 timothy.potts@tiscali.co.uk

WANTED OWNERS operating manuals for Marantz PM6010SE amplifier and Dunlop Systemdek turntable. Have you an original? Will you copy it for me? Willing to pay reasonable costs. Thanks. 01293 525108. david.riches@uwclub.net

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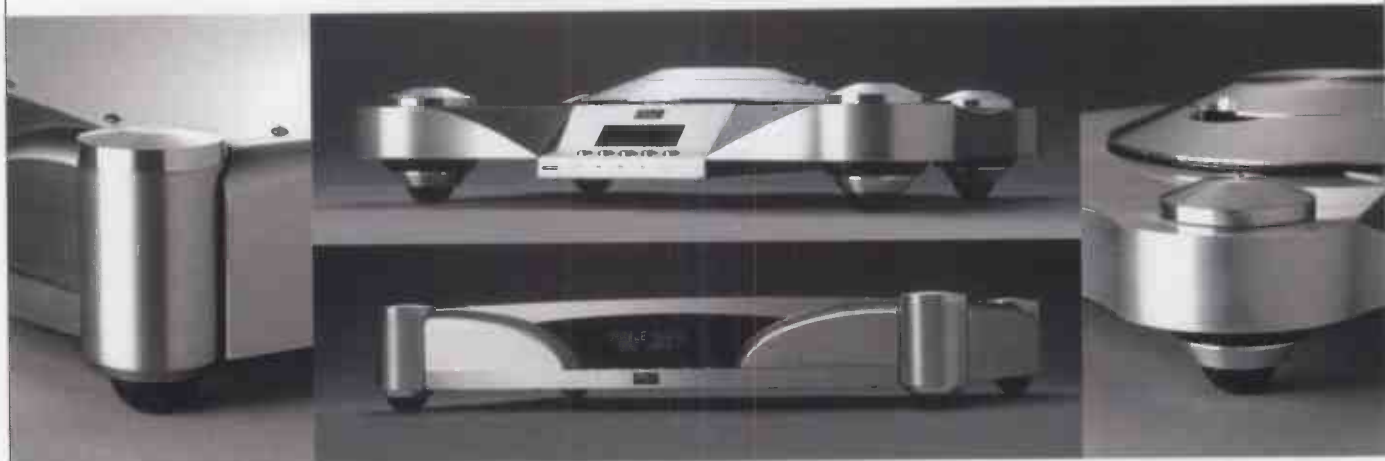
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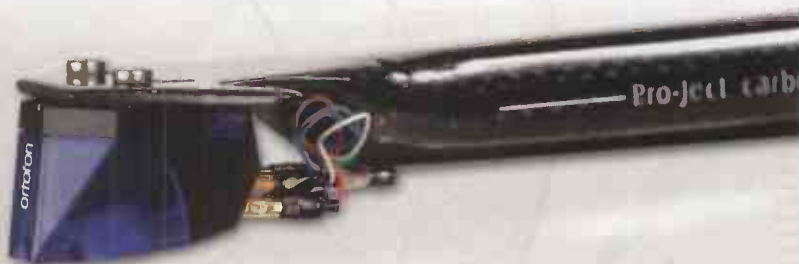
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WILSON BENESCH square 2 speakers in maple mint condition £1,500 NAIM NAP 300 power amp £3,500 NAIM CDS3 SNO219... £3,700 XPS olive £1,000 all mint can demo TEL 02380470107.

QUAD 405-2 power amp Late grey excellent working order and condition £280 ONO Mobile No: 07502009541 Tyrone

EXPERIENCE S1000 Loudspeaker Cables 5M Stereo Pair: Spades One End 4mm Banana Plugs The Other: Drain Wire. White Fabric Outer Sheath. £400 ONO. Craig unstableatspeed@hotmail.com (Loughborough)

CYRUS 8VS2 integrated amplifier £499. Cyrus CD8SE compact disc player £899. Cyrus PSX-R power supply £299. All less than one month old. Genuine reason for sale. 01785 613408 (Stafford).

WORLD DESIGNS HD83 headphone amplifier, 18 months old, as new (RRP now £528), and made by WAD; sell for £225, would prefer buyer to collect (Staffs.) tel. (01782) 333928.

CAMBRIDGE AUDIO Azur 640A integrated amplifier, silver, as new, hardly used, 65 watts/ Bohms. contact - 07792109949

WANTED ; CRIMSON Elektrik 510/520 pre/power amp combo - working or faulty units considered Dave Nolan Tel 00 - 353 - 6279810 (Ireland)

FREE TO COLLECTOR. Armstrong 127 valve tuner-amp, Hacker Centurion set and other bits and bobs. Condition unknown. Please tel: 01665 570662 (mid-Northumberland).

NAIM CD5X £899. NAIM 112 pre-amplifier £249, both mint/boxed. Chord Chameleon silver plus interconnects 1m. £69pr. 0.5m. £59pr. Anthem 2 interconnects 0.5m. £119pr. ODDYSEY 2 s/ cables. 4m. £89 pr. All factory terminated. Tel. 01984 640588.

CYRUS CD6S CD player, Cyrus 6VS2 amp (both in quartz silver), Epos M5 speakers (dark cherry), £999 (£1700). All items fully boxed & in pristine condition. Lee West Midlands leet2009@hotmail.co.uk

MICHELL HERA power supply for Iso / Agro amplifiers Also Michell Gyrodec platters - Mark I & mark 2 upgrades + Rare Gyro Blue base sensible offers invited Stuart - 07870 912 963 e: stuart.wittering@raisedfloorsystems.co.uk

BX-300E, NAKAMICHI cassette, bought 1985 and very little used since serviced by B&W/Nakamichi in 2000. Good condition except minor scratching on lid. Best offer over £150. rob@aldermanassociates.com (Middlesex)

WANTED -NAKAMICHI DRAGON cassette deck. Must be mint/unmarked condition, boxed with manual, preferably with B&W Nakamichi service record/history. Call Simon on 01483 271669 (evenings/weekends) or 07759205820 (daytime). Surrey.

MARK LEVINSON No 436 Pair Monoblocks, Power Amplifier 350 watt 1 year old with 4 years warranty late model, boxed (£9990) £6600 ONO Mark Levinson No3805 preamp (£6500) £3200 07776186828

GARRARD 301 Turntable. Brand new, and still in original box and packaging together with manual, inspection report, template and all accessories. Serial No.79904. Rare opportunity. Sensible offers invited. 01708 552552 (Essex)

PAIR KEF Cresta 2's. Excellent sound quality for price. Cabinets cosmetically imperfect (covering peeling at corners) hence low price. £30. Located Maidenhead. Collect only. Geoff, glowther@lowthercomputer.com 07971 303640.

REVOLVER TURNTABLE (red hammered finish) c/w Linn Basik LVX arm and Linn K9 cartridge (low usage). Packed away for 13 years and sounds terrific. £100.00 fotherw@tiscali.co.uk Tel. 01324638642 (Falkirk)

TECHNICS SL-1210MK2 Decks. Numark DM2002x mixer. Denon PMA-250SE amplifier. Technics SB-CS 75 speakers. headphones & all connections. excellent condition. £450. tel: 01384 893380 (Stourbridge)

MERIDIAN HIGH Speed AA Power Amplifier, Just serviced by Meridian £250, and Musical Fidelity The Preamp £100. Excellent condition for age (mid 80's). Superb sound. sfidler1@hotmail.com or 02380325620. Hampshire.

WANTED FAULTY or non working Quad 34 or 44 preamps, Quad 33 panels or scrap amp, Decoder panel for Quad fm2 tuner, 405-2 boards. Contact Mike on 01758 613790.

FOR SALE Quad 44/405 Power/preamp £295 plus postage Very Good Condition also including CD card in auxiliary. Tel: 0121 353 6800 Email: johndsandshelaf@hotmail.co.uk

ATC SCM19 loudspeakers cherry as new boxed £1000 Musical Fidelity KW550 amplifier 2 box amp mint boxed £2000 only 3 months old buyer collect Coventry 02476448344

2X NUFORCE REF9 SEV2 mono-blocks-black- 6 months old. hardly used. 4/12 year warranty. need to sell because moving abroad to work. £1950 ono bargain (£3400) 07814546984/ 07523852123.

MORDAUNT SHORT Performance 860, floor- standing speakers, in piano black. These received excellent reviews, (can email reviews and photos). Cost new: £1,900. Sell: £550. Tel: 01424 446282. Hastings, Sussex

MISSION 782 speakers, black ash, mint with boxes, 5 star rated, compact floorstanders 79cm high, cost £800 sell £350. peter@brookes.org.uk or phone Peter 07966 086593.

NYTECH ACTIVE amps. CTA252XDMK2 receiver still a superb tuner! (modified for banana plugs) and CPA matching amp. Both 50W per channel. Complete with Monster cable reverse DIN lead. Instructions and receipts. Fair condition. Wood trim needs affixing and 1 channel down. Offers. 01909 730 681 or 97783 327 689 Evenings.

BX-300E, NAKAMICHI cassette, bought 1985 and very little used since serviced by B&W/Nakamichi in 2000. Good condition except minor scratching on lid. Best offer over £150. rob@aldermanassociates.com (Middlesex)

WANTED: CRIMSON Elektrik 510/520 pre and power amp. Working or faulty. Tel: Dave 00 3531 627 9810 (Ireland)

CLASSIC CONTACTS

When a classic goes 'poof' your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all those companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

GT AUDIO
(Graham Tricker, Bucks)
Leak Troughline specialists. Also Quad and most classic tuners, radios and amplifiers restored, repaired.
Tel: 01895 833099
Mob: 07960 962579
www.gtaudio.com

TECHNICAL AND GENERAL
(East Sussex)
Turntable parts - wide range of spares and accessories, plus arms and cartridges.
Tel: 01892 654534

CARTRIDGE MAN
(Len Gregory, London)
Specialist cartridge re-tipping service and repairs. High quality special cartridges.
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Email: thecartridgeman@talktalk.net
www.thecartridgeman.com

AUDIOLAB
(Phil Pimblott, Leeds)
Renovation, repair and restoration. Specialist in valve hi-fi, radio transmitters, cinema amps, kit building.
Tel: 0113 244 0378
www.audiolabs.co.uk

QUAD ELECTROACOUSTICS
(Cams)
Quad's service department, able to repair almost all Quad products, from the very first.
Tel: 0845 4580011
www.quad-hifi.co.uk

ARKLESS ELECTRONICS
(Northumberland)
Specialist in repairs, restoration and modifications to all amplifiers, valve or solid state, ancient and modern.
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SOWTER TRANSFORMERS
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Large range of audio transformers for valve amps, cartridges, line drive, interstage plus all associated services.
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www.onethingaudio.com

CLASSIC NAKAMICHI
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Dr MARTIN BASTIN
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(London)
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LORICRAFT AUDIO
(Terry O'Sullivan, Bucks)
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www.garrard501.com

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Tel: 0117 925 6015
www.octave-aw.co.uk

NEXT MONTH

As the British summer subsides into the usual dark and damp disaster, you can rely on Hi-Fi World to cheer your mood with all that's brightest and best in hi-fi. Leading the roll call we hope to publish our review of the new Martin Logan CLX electrostatic loudspeakers, and an in-depth look at a high end CD spinner - Oracle's CD1500 [pictured]. Then we've got a £1,500 phono stage supertest for analogue addicts, and Rotel's RSX-1550 AV receiver for surround sound fans. Factor in everything from a classic B&O Buyer's guide to Cyrus's latest affordable integrated, and it's another bumper issue to look forward to!



MARTIN LOGAN CLX ELECTROSTATIC LOUDSPEAKERS
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JULY 2009 - 5TH MAY

AUGUST 2009 - 4TH JUNE



SAXON

STRONG ARM OF THE LAW

1980

A classic album from a classic rock band. One of the leaders of the New Wave of British Heavy Metal, along with Iron Maiden and Def Leppard, Saxon released their patchy self-titled debut album in 1979, offering promise that was immediately fulfilled with the release of 'Wheels Of Steel' in 1980. Surprisingly, this third album was released only six months later. Whilst it lost out to 'Wheels' in terms of the hits count, 'Strong' was superior in that it maintained a higher quality of music throughout. Listening to the album, even now, there's also an underlying sense of British... well, is it humour? Whimsy? A breed of self-mocking? It certainly distances itself from the overly earnest and frankly dour contemporary examples often found emanating from the USA. Familiar tracks are packed into this CD, one of a new series of nine remastered reissues with extra tracks from the band on EMI - and will be familiar to any fan who has seen the band live - such as '20,000 Feet' and 'Hungry Years'.

One of the highlights of this series are the extra tracks that have been added to each CD, and 'Strong' is no exception. In fact, it features the complete 1982 David 'Kid' Jensen B15 session, recorded live in the studio for BBC Radio 1 and includes new mixes taken from the original 24-track tapes of 'To Hell And Back Again', '20,000 Feet' and 'Heavy Metal Thunder'. The CD also includes the previously unreleased song 'Mandy' and an early working version of 'Sixth Form Girls'.

But what about the mastering quality and the overall sound of this

"It distances itself from the overly earnest and frankly dour contemporary American heavy metal of the day..."

reissue? The short answer is that it has been mastered by Peter Mew at Abbey Road, but that would leave a telling white space haunting the rest of this page. The elaborate Mew has been in the business for almost forty-four years. His experience is broad having worked on everything from, "Pinky & Perky to Pink Floyd". He is a mastering engineer loved by audiophiles. For example, his priority in music is transparency and he never produces a 'loud' CD, ruined by excessive peak limiting.

Even though 'Strong...' has been remastered for CD, a fair amount of analogue preparation had to be considered because the master tape suffered from flaking oxide which meant that the tape had to be baked. "Baking cures the problem temporarily. They start getting sticky again within six months. The only problems we get with such tapes is if they've been baked incorrectly. You have to remember to remove the tape leader. If you don't and you bake it, the plastic on the leader melts and sticks itself to the oxide on the tape and then the tape becomes unplayable. Hence, it's not just a case of taking a tape out of the box and sticking it in the oven", he told *Hi-Fi World*.

In particular, when producing 'Strong...', Mew was focused in his task, "I wasn't looking to produce a direct archive. What I wanted to do was, using my experience, reproduce the sound of the band the engineer heard when he initially recorded it.

That sound is not necessarily what's on the tape."

This is an important point and one that often trips up music fans of all shades. "In the days when these things were recorded, the monitoring environment in control rooms was often not very good: the speakers, the acoustics in the room, everything. So the music that the engineers were listening to was not necessarily the same music they were putting down on tape. Hence, if you actually listen to some of the sounds placed on the tape you ask yourself, why would anyone have done that? The answer is - because that's not what they heard! The acoustics of the room were affecting the sound, for example, and the engineer, blaming the music, would compensate for it to balance out the sound which means, through our better quality monitoring equipment, the music now sounds unbalanced. After all, if you use very bright speakers, you tend to make a very dull tape."

This is an important point to bear in mind when listening to original vinyl issues. Be aware, be critical and don't fall into the dewy-eyed, 'every-vinyl-album-is-better' trap.

The result is a CD with maximum sound quality that the format can muster, providing an excellent reissue. It has plenty of dynamic range and really benefits from playback on a top quality CD player but also sounds fun on a budget model. **PR**

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