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**WHAT HI-FI?**  
SOUND AND VISION  
GROUP TEST

What Hi-Fi? Sound & Vision  
August 2006



# seasons greetings

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## testing

Hi-Fi World has its own advanced test laboratory and acoustically treated listening room, and a dedicated team of experienced listeners. We review thoroughly by extensive auditioning, rather than by quick-fire group listening tests. Our engineering team designs a wide range of products in-house. No other hi-fi magazine is so expert and dedicated.



Eagle-eyed readers will have already noticed this is our yearly Christmas special, and what is Xmas if not an excuse for close encounters of the hi-fi kind?

So we're delighted to bring you our *Awards 2006 Special*. Starting on p91, you'll find ten pages of our favourite products reviewed over the past year. The standards have been higher than ever, making it even harder to choose which kit to give the gongs to, but we got there in the end. Cheers!

More festive fun comes in the shape of Revolver's new Cygnis loudspeaker (p10) – a product I first heard some months back and fell in love with. It's hard for a budget brand to move up to the high end, but the Cygnis is superb. We wish Revolver well.

Elsewhere we have a 'stocking full' of assorted other treats. The *Hi-Fi World* team write their Christmas lists on p15, and rest assured we'll be leaving copies of this magazine lying around in front of our other halves, with 'our' pages open and in full view. You should try this trick too, with your objects of desire ringed with a large marker pen for the family to see...

Speaking of which, Artemis's PH-1 phono stage (p25) is a tubular belle with a sound to cure your cold feet on winter evenings. It's also nice to see an affordable 300B-based tube amplifier, and Icon Audio's Stereo 300 (p32) is such a beast, offering tremendous value. For those seeking visual stimulation over the holiday period, Arcam's new DVI 37 (p46) is one of the very best ways to play DVD videos, DVD-A, SACD and Compact Discs.

If you have time on your hands to buy some classic hi-fi, then before you've blown your Aunt Maud's Christmas money, check out our eBay survivor's guide on p41, with all the do's and don'ts of buying and selling hi-fi online.

Then we have two lovely Christmas presents for radio heads. On p60, Steven Green explains why, in a few years time, the existing Digital Radio system could be obsolete, thanks to new higher quality AAC+ codecs! If you can't wait that long, and want a beautiful high quality DAB portable, check out the new Vita Audio R1 (p49), from speaker specialist Ruark no less.

From Thorens' cool new TD350 turntable (p62) and the madcap Flying Mole CA-S3 Class D mini integrated amplifier (p65), to a group test of top budget cartridges (p53), this issue is a right cracker. Enjoy, but remember – hi-fi is for life, not just for Christmas!

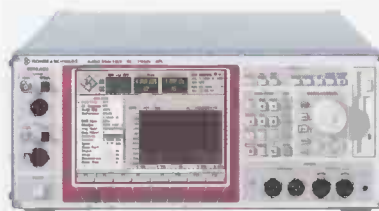
David Price, editor

## verdicts



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**EXCELLENT**  
**GOOD**  
**MEDIOCRE**  
**POOR**  
**VALUE**

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extremely capable  
worth auditioning  
unremarkable  
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# news

## PERFECT SYNERGY

Back in the 1980s, Apogee's original Scintilla loudspeaker made a serious impression on many a well-heeled audiophile, whilst bringing all but the most expensive amplifiers (such as Krell) to their knees. With a 1 ohm nominal load, they were not the most accommodating transducer, even by eighties standards. Now, the brand is back with the Synergy 1.5, one of the most stunning loudspeakers your editor has yet heard. The princely sum of £13,000 buys you a pair of 1500x450x900mm monsters, with separate bass, midrange and treble ribbons from 'Super Light Weight' foil and a North Creek first order crossover. Quoted frequency response is 20Hz-25kHz, sensitivity is 95dB and impedance a trifling 2.5 Ohms. The Synergy 1.5s will work with (some) amplifiers between 20 and 100W, and come in "any automotive colour" you like! For more information, click on [www.apogeeacoustics.com](http://www.apogeeacoustics.com).



## HOT STUFF

The new English Valve Amplifiers Proteus tube power amplifier is based on the 1947 Williamson push-pull triode amplifier design. The company says its aim is to design and build no-compromise valve-based hi-fi equipment without over-inflated prices. Each piece is developed and built on the south coast of England. The amplifier gives 20 watts RMS into 10 Ohms continuous, with speaker impedance nominally 8 Ohms. Frequency response is quoted at 3Hz to 50kHz, hum and noise is 1.5mv at full volume, and the vital statistics are 609x305x230mm and 33kg. The price is £4600 and for more information, contact Paul Benge at English Valve Amplifiers on 01424 445107 or click on [www.valve-amps.co.uk](http://www.valve-amps.co.uk).



## JUST AN ILLUSION?

Gryphon Audio Designs of Denmark has a stunning new high end preamplifier for sale. The Gryphon Mirage Control Amplifier is claimed to, "add exciting new capabilities to make high end performance more accessible and more flexible than ever before". Boasting dedicated software (sold separately) for easy integration with AMX or Crestron home automation systems, this a very versatile product. Gryphon founder Flemming E. Rasmussen explains, "Our goal with the Gryphon Mirage is to make Gryphon-level audio quality available to a new audience who are not necessarily hardcore audio enthusiasts, but who are equally serious about sound quality, design and ease of use." The preamp consists of a solid aluminium 'magic wand' remote control, detachable control section and preamplifier. The control section can be mounted to the preamplifier chassis for a (slightly) more conventional appearance or stand-alone with wireless communication to the main chassis. Price is £16,900 plus tax. For further information, please contact Gryphon Audio Designs on 0845 4000400 or click on [www.gryphon-audio.com](http://www.gryphon-audio.com).

## ALASTAIR ROBERTSON- AIKMAN (1924-2006)

### founder of SME

We were greatly saddened to hear of the recent death of Alastair Robertson-Aikman, founder of SME. Since its inception in 1946, SME has been a byword for engineering excellence, thanks to Alastair's technical prowess and involvement in the day-to-day running of the company until very recently. Alastair was also one of the original pioneers who helped to bring about the true definition of the term "high fidelity", and single-handedly redefined the design of tonearms with the introduction of the 3009 in 1959.

All of us at *Hi-Fi World* would like to extend our deepest sympathies to the Robertson-Aikman family.





## GOING DUTCH

From the Netherlands comes a novel product – a DIY valve CD player kit. Tentlabs is offering a kit based on a modular architecture that, “contains all parts required to build a high-end playback system”. All components are pre-mounted on modules that come fully assembled and tested. These just need mechanical mounting and to be interconnected to build a complete player. To give it a professional finish, a DIY cabinet is available as well. The player is based on the famous Philips CD-Pro 2M drive, connected to a dedicated Tentlabs-designed DAC via the low jitter I2S interface protocol. To fully optimise the potential of I2S, the drive is put in slave mode, driven by the Tentlabs XO

module as a master clock. This clock sits at the DAC module, close to the PCM1704 DA-chips. These run in non-oversampling mode, bringing a “smooth and detailed playback”, the company says. Twelve stabilised power units grant stability and low crosstalk throughout the whole system. The output stage is a new and novel hybrid design based upon the E8CC triode. Efficient power supplies using three toroidal transformers and a separate display unit complete the kit. The player is prepared for an additional module, which interfaces with the USB port of a PC so that the CD player becomes a playback system for hard disk files, using the same DAC and output stage. Of course, also in this case, Tentlabs will pay special attention to the isolation of jitter induced by the USB interface. A drive only version of the CD player will become available as well. Available now, the kit costs £2,100 plus VAT and shipping. For more information click on: [www.TentLabs.com](http://www.TentLabs.com).



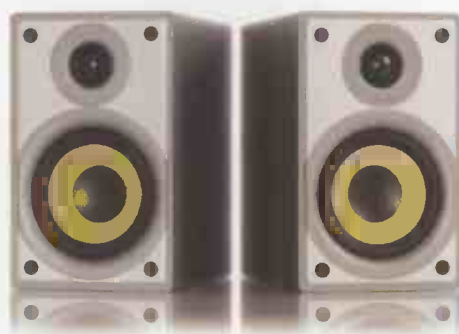
## ARTFUL

The new German-designed and built Acoustic Arts CD Player 1 Mk2 is said to be the result of the experience of over ten years of professional music production, with the stated aim of, “achieving maximum authenticity during sound reproduction”. The machine is a 24bit/192kHz upsampling top-loader design, with an “exceptionally precise magnetic puck guaranteeing ideal disc-reading conditions”, in a CDM Pro 2 drive module with cast metal frame and mechanical decoupling. A magnetically shielded toroidal core 75 VA transformer is used, plus five separate power supply units for laser control, digital signal processing, display control, display heating and D/A converter section with very high capacity (35,000uF) Panasonic capacitor.

There's a generously dimensioned buffer section, selected filter capacitors and metal film resistors, and a separate shielded compartment housing the drive mechanism. UK retail price is £3,985, and it's available now from Audio Reference (01252 702705), at [www.audioreference.co.uk](http://www.audioreference.co.uk).

## OFF ON A TANGENT

Tangent's new HTD-100 loudspeakers are said to be an excellent entry level standmounting design. At just £79.95, the Danish manufacturer says they offer fine sound per pound and pleasing styling. For more information, click on [www.tangent-audio.com](http://www.tangent-audio.com).



## DAB HANDLING

The runaway sales success that is Digital Radio continues unabated, according to figures just released by the DRDB (Digital Radio Development Bureau). They show DAB radio penetration is on track to top 50% of households by 2010. In its annual forecast, the DRDB says sales in 2006 will be around the two million mark, delivering a household penetration of 13.9% by the end of the year. This is expected to rise to more than 40% by 2009, and top 50% in 2010. The forecast, which tracks DAB set sales across all categories, was audited by media analysts Oliver and Ohlbaum. Using a bottom-up analysis of the current DAB set market, it also considers the dramatic shift within the audio market in recent years as listeners find non-traditional ways to receive radio – a trend that is expected to continue.

DRDB chief executive, Ian Dickens, says, “Over the past four years, we have seen a dramatic rise in the number of DAB digital radio sets available to consumers and there are now around 300 different models available from all the leading consumer electronic brands. Having established a firm product base in the traditional radio market, our aim is to ensure DAB digital radio is also available across a broader range of devices as digital convergence continues. To meet these needs, DAB digital radio must be included in new multi-purpose devices”.

With the launch this month of the first mobile phone able to receive DAB stations (the Virgin Mobile Lobster 700), a new path to DAB reception is expected to emerge, says the DRDB. There is already a range of combined DAB/MP3 players available, and this market is likely to double by Christmas. And, later this year, the first MP3 docking stations with DAB digital radio inside are expected in stores, from a number of key brands. Figures released by Rajar show that listening to digital radio is on the rise, and that DAB remains the medium of choice for digital listening, delivering more than DTV and the Internet combined. They go on to report that listeners to a DAB digital radio set consume 16% more radio each week compared to those listening on an analogue receiver. (The DRDB is funded and supported by the BBC, Digital One, GCap Media, EMAP Digital Radio and MXR.) [For a less rosy assessment of DAB, see 'AAC IN THE UK' on p60 - Ed.]





## SCALE MODEL

With a possible 'hi def' format war looming, some might say it is not a great time to invest large amounts of money in a DVD universal player right now. If you're thus minded, Denon's very modestly priced (£249.99) DVD-1930 may be of interest. It boasts 1080p upscaling for existing DVD movies, HDMI with HDCP Digital Video Out, 216MHz/11bit high-end Video DACs, the latest Faroujda DCDi FLI-2301 PAL progressive scan and a discrete video circuit. Audiophiles are not forgotten either, as the Denon is a universal music player for CD, SACD and DVD-Audio discs that boasts anti-vibration construction (with a braced chassis and top cover), separate circuit boards for analogue and digital and 24bit 192kHz audio DACs. For more information, click on [www.denon.co.uk](http://www.denon.co.uk) or call 01234 741 200.

## NEW HEAD LINE

Based on the well respected Stello design, the Russ Andrews HP-1 headphone amplifier is designed to replace the crude chip-based headphone amps fitted as standard to many CD players. Said to be a reference quality product, it is claimed to give "unparalleled detail, openness and musicality when coupled with a good pair of headphones". Additionally, the product features a separate preamplifier circuit that lets it double as a high quality preamp with inputs for two sources. The preamp can be connected to any existing power amplifier, but is especially suited to the matching Russ Andrews PA-1 power amp. The diminutive enclosure (only 212mm wide) makes it the perfect size for the basis of a high quality desktop system for use with a computer or media server for high quality headphone listening. For more details, click on [www.russandrews.com](http://www.russandrews.com).



## TOP DECK

Monitor Audio's latest i-deck compact follows on from the original, highly capable, larger model that *Hi-Fi World* reviewed some months ago. Twin high quality 4" full range loudspeakers and good onboard amplification make for serious sound, while the unit boasts a number of connectivity options that, for example, let you route video from your iPod to a TV or projector so you can see your favourite video downloads in all their glory. The i-deck compact is said to be "child's play" to set up and use – just power up, slot in your iPod and press play. Tracks can be selected via the infra red remote control which allows total iPod navigation, plus there's a front located power button and volume control. It also charges your iPod as it plays. The i-deck compact can be used with any version of the iPod, coming as it does with iPod dock adaptors for iPod 3G, 4G, mini and photo. It's also fully compatible with Apple's universal 'well' integration for iPod Nano and 5G plus any future generations of iPod without the need for future upgrades or additional bezel inserts. There's also an audio input so you can also choose to listen to music on i-deck compact from other audio devices such as iPod shuffle, MiniDiscs, CD players, radio and more. Available in white-grey or black, the i-deck compact can be purchased direct from [www.i-deck.com](http://www.i-deck.com), Apple and leading on-line and high-street electrical retailers for £149.

## WIRED FOR SOUND

Mobile music lovers still using the earbuds that came bundled with their portables should do themselves a favour and get something decent. Top of our list remains the Sennheiser MX550, but those wanting a more isolating 'ear canal' design should consider the new CX300. Available in 'Classic Black', 'Matt Silver' and 'iPod White', these – says the manufacturer – "keep the music in and the noise out". This is Sennheiser's first consumer 'ear-canal' design and is based on technology from Sennheiser's professional in-ear stage foldback monitors. One great benefit is that the very high efficiency helps prolong battery life on iPods, and gives their weedy analogue output stages a helping hand. The CX 300 employs an advanced, miniaturised driver, tailored by Sennheiser for smooth, acoustically correct in-ear operation; this provides the CX 300 with an extended response (18Hz-21kHz). The phones are supplied with three different sized ear adapters in soft, silicone rubber that ensure long-term comfort, as well as the seal necessary both for reduction and deep-information, call or click on [www.sennheiser.co.uk](http://www.sennheiser.co.uk)



# Silky Way

Adam Smith thinks Revolver's new high end Cygnis floorstanding loudspeaker is a truly stellar performer...

Some three years back, a luncheon meeting with Hi-Fi World's editor, David Price, saw Revolver's Michael Jewitt confess that he'd "love to do a big three way loudspeaker, but the market just wouldn't bear it". Back then, slim, small footprint floorstanders were *de rigueur*, and not even the more adventurous members of the loudspeaker design community such as Mr Jewitt felt they could dare – if you pardon the pun – think outside the box...

Now, at the tail end of 2006, Revolver have finally made a declaration of intent. The brand new £5,999 Cygnis showcases what they can really do when they put their mind to it, producing a flagship model unconstrained by budget. Just as with the super Mordaunt Short Performance 6 last year, we see a British brand hitherto famous for budget and mid-price offerings, moving into the real high end. Regular readers will know how Revolver's keenly priced standmounters and floorstanders (R16s, RV45s, etc.) are firm favourites amongst us here in the *Hi-Fi World* office. So we were more than keen to get our hands on the company's new flagship.

At 35kg per unit, the Revolvers are certainly not lightweights; they feel solid and sturdy. Each cabinet is divided into two, with the upper



infinite baffle housing containing the 26mm metal dome tweeter and the 130mm woven glass fibre midrange driver. This sits atop and is permanently fixed to a larger, ported and fully braced enclosure which is home to the bass driver. As a keen exponent of the theory that there is no substitute for inches when it comes to good bass, I was pleased to see a healthy 254mm (10in) driver handling this end of things - no overstressed little cones struggling here!

The drivers are strung together by a hand built crossover that is fully hardwired and resides in a dedicated enclosure to keep it away from internal vibrations. Two pairs of rear-mounted terminals allow for bi-wiring or bi-amping if desired. The lower cabinet and front and rear surfaces of the upper cabinet are available in a choice of maple or dark cherry wood finishes, whilst the wraparound top of the upper enclosure is covered in a high gloss, metallic black finish that gives the Cygnis a distinctive appearance. Apparently, a carbon fibre finish was also considered and prototyped for this surface, but was rejected by the female contingent of the assessment panel at Revolver...

## SOUND QUALITY

After heaving the Revolvers into position, followed by a suitable warm-up period, the first CD I dropped into the player was Jennifer Warnes' 'The Hunter' which just happens to be an excellent test disc thinly disguised as an superb album! With a few notable exceptions I have never been much of a fan of

small loudspeakers, despite their undoubted strengths in certain areas, as I much prefer the grand sense of scale offered by a well designed big box. Consequently I was pleased to hear straight away from the Revolvers that Jennifer appeared

"their big-hearted nature presented music with staggering levels of dynamics and presence..."

to be larger than life right in front of me, showing that the design of the Cygnis has resulted in a properly 'big' sounding loudspeaker which, for me, set things off to a good start. Moving through the album, the Revolvers maintained this sense of authority throughout, and threw out the bass impact of tracks like 'Way Down Deep' with disdainful ease.

Midrange detail retrieval was impeccable and backing vocals were never lost or swamped by the powerful leading voice. Looking at the frequency response [see MEASURED PERFORMANCE] there is a gentle peak in level at around 600-700Hz and a corresponding dip just above 800Hz; the peak just happens to coincide with voice output, meaning that the Cygnis will be unlikely to lose any detail in this area. Of course an increased output in this region can give rise to associated unpleasantness, but this was never the case with the Cygnis and goes to show how well designed the midrange driver is. The subsequent dip higher up in the

response usefully serves to impart a smooth character to the midrange and actually makes a very successful overall result when combined with the effects of the peak.

Moving to classical and the well known 'Spring' from Vivaldi's 'Four

Seasons', the Revolvers shone with an exquisite sense of neutrality across the mid and treble and played violins with real emotion and clarity. Undoubtedly assisting in this was the tweeter, which is one of the finest I have listened to for quite a while. The response curve shows that it increases quite considerably in output above around 16kHz but this just serves to increase detail and spaciousness, and never once gave any sense of harshness. The driver actually has a quite interesting character as it seems to combine the best of both worlds, in that it has an abundance of the extension and detail of a good metal dome, but without any of the hardness that often comes as part of the package - it was almost like a soft dome device in its smoothness and lack of 'nasties'.

Winding up the *Hi-Fi World* reference gramophone and cueing up the 30th Anniversary 'Dark Side of the Moon' LP revealed that these loudspeakers are a real treat for vinyl fans. The increased breadth of soundstage of vinyl compared to CD, combined with the big-hearted nature of the Cygnis served to present the album with staggering levels of dynamics and presence. The heartbeat at the beginning really punched me in the chest and I ended up playing the



## DP SAYS:

From the moment I set ears on a pre-production pair at Revolver's Saltash factory last summer, I was convinced the Cygnis was special. The feeling was all the more marked because at the time I was living with the redoubtable B&W 801Ds - £10,000 worth of startling clarity and visceral impact. In a sense, the big bore Revolvers struck me as a slightly smaller, downscaled version of the massive B&Ws, with - dare I say it - a tad more finesse across the midband. These are beautifully beguiling loudspeakers which have deceptive clarity, surprising insight (all the more so considering the same mid and treble drivers seen in the £900 R45i are used; it certainly doesn't sound like it!) and a nicely tuneful bass. Best of all for me was the tonal palette available to them; whereas the B&Ws were slightly tonally 'samey', the Revolvers were better able to signpost subtle textural detailing such as differences between different makes of violins, for example.

Overall then, to paraphrase Adam, while these don't do any one thing remarkably well, they are still remarkable in what they do - which is to sound big, smooth, musical and 'all of a piece' like few others at the price. I heard them with Audion tube amplification, and was charmed by the even-handed yet engagingly musical performance that came out. My only worry is that, because the Revolver brand is associated with budget boxes, potential high end customers might not seriously consider the Cygnis for audition. This would be a mistake. DP

*exposure*



Those who appreciate good sound will prefer the tighter "S."

3010S

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- Larger power supply
- 110 watts RMS (as compared to 100W for the previous model)
- Capable of driving sophisticated speaker systems, in bi-amping mode or monoblock mode
- Clean and extended low frequency response

whole of Side One, rather than the single track I had intended.

The only thing I did notice here was a very occasional hint that the Cygnises were losing a little control over some of the deeper notes. Checking this with the help of Steely Dan's 'Jack of Speed' confirmed that, whilst the Revolvers' bass is agile, detailed and deep, some leading edges of notes could be a little blurred in the overall picture. At this point I briefly dropped the Unplugged live version of Eric Clapton's 'Hey, Hey' into the CD player, as this deceptively simple track has the ability to spotlight any timing issues and I have heard it reduce many a loudspeaker or (especially) subwoofer to a lumbering, wallowing wreck. Fortunately, the big Revolvers passed with flying colours and revealed their timing to be spot on, so this was not the problem.

Swapping amplifiers around to

"beautifully beguiling loudspeakers which have deceptive clarity, surprising insight"

a few different models showed that one or two units made the issue somewhat worse, but the humble Audiolab 8000S removed it almost entirely. We have found that the 8000S has a superb ability to control the low end of loudspeakers [they have a high damping factor - NK] and this would suggest that the Revolvers require a grippy amplifier to achieve the very best bass performance.

**CONCLUSION**

When testing loudspeakers it not unusual to start listening to a new pair and begin a review with



**NOEL SAYS:**

"The first thing that I noticed about these loudspeakers was...", that they have unusually strong ability to resolve vocals, giving singers like Alison Goldfrapp greater presence and enhanced enunciation, for example. Spinning her 'Ride a White Horse' 12inch 45rpm single, a disc with dynamics and imagery that shames CD, I could more easily discern her lyrics straight away. And this is against the highly projective horn of the Tannoy Yorkminsters I use. It turned out that the Cygnis is subtly enhanced in this area which, when you add in a crisp, clean midrange quality, brings real strength to vocal resolution.

Add in strong bass with good heft, due to the large 10 inch driver, and finely etched treble and you have a honed presentation that shows the sort of balance you would expect from a company with long knowledge of loudspeaker engineering and market requirements, The Cygnis has strong bass dynamics, but I heard some box whoomph at times, minimised by an amplifier with low output impedance/good electrical damping, but this is not uncommon. Loudspeaker designers struggle to get the balance right here, as the final result is dependent upon the room. The Cygnis is a highly developed loudspeaker that's impressive to listen to, I thought. NK

something along the lines of, "the first thing that I noticed about these

and made the very best of it, without attempting to cover up deficiencies in the recording. After completing a structured evaluation of the Revolvers I found myself digging through LPs and CDs purely for the enjoyment of listening to them and this is surely the sign of a good loudspeaker.

Revolver have pitched the Cygnis into a difficult section of the market, where your £5,000 will buy well known and established designs from the likes of B&W, Quad and Tannoy but they have succeeded admirably in coming up with a design that is more than able to tackle the 'big boys' head on - highly recommended.

loudspeakers was...", but I found this was not the case with the Revolvers. Right from the beginning and continuing the more I listened, I reached the conclusion that it was not possible to distinguish any one single area in which they excelled, because their whole sound integrated together so superbly.

From the upper reaches of the treble down to the lower bass, the Cygnis' proved utterly competent, well balanced and largely unflappable. The issue highlighted with the bass is not a concern provided that a partnering amplifier with a decent level of bass control is chosen and, apart from this, the Revolvers were largely uncritical of amplifier choice.

They took every genre of music

**MEASURED PERFORMANCE**

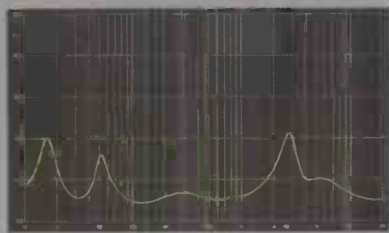
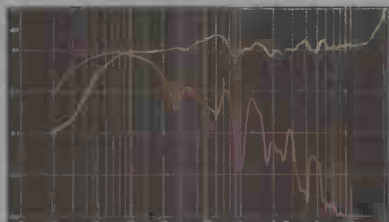
The Cygnis show a generally flat trend to their response across the frequency range, with a couple of small undulations in the midband. The lower peak corresponds to the main area of the human voice almost exactly, and so I would expect them to be particularly good at vocals. The dip just above this will serve to ensure that there is a minimum of harshness in the midband and generally impart the loudspeakers with a quite laid back nature.

The treble output rises quite sharply by 11dB or so above 16kHz or so and although this looks quite alarming, will not be immediately audible to most people. Instead, providing the tweeter is well designed, it should have the effect of increasing spaciousness and detail at the top end, which means the Revolvers will have good treble.

Bass output is even and extended, augmented by the distributed type port used, which gives output over a wider range of frequencies than a standard type. This, coupled with the large driver

in a good sized enclosure, means the Cygnis will not lack bass and the port provides substantial damping.

With an average sensitivity of 91dB and an even impedance curve the Cygnis will not be difficult to drive, although their DCR of 3.7 Ohms means that an amplifier genuinely capable of powering a 4 Ohm load will be needed. AS



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# Wishful Thinking

Ever wondered what the team want for Christmas? No, we didn't think you had, but still, leaving this magazine on the coffee table, with the next four pages in full view for your other half to see, might just give her (or him) a great idea...

## DAVID PRICE EDITOR

Given that Adam has now outranked me as World's resident turntable geek (I only have ten, he has eight!), then I thought I'd sniffily pretend that I never liked vinyl anyway, and instead develop an unhealthy interest in iPods. Trouble is, I'm an audiophile, and bringing the two things together in the same sentence (or pocket) is tricky – but possible. Here's how...



## APPLE IPOD NANO 8GB (APPLE STORE, £169)

Well, it had to happen sooner or later - me and an iPod, happy together. Not quite, because – exquisite as this may be in form and function – it doesn't sound as good as my old Sony MD portable, or even earlier generations of iPod that I've heard for that matter. Running your iTunes AAC encoder at 256kbps VBR (at the very least) is essential for decent sonics, which translates to just (in my case) 781 songs fitting into its modest 8GB memory. Still, for me the top Nano is the most desirable current 'Pod – long battery life, smaller than a MiniDisc and deliciously hewn from anodised aluminium. Trouble is, it has a weedy analogue output stage – but hang on, help is at hand...

## XENOS OHA-REP HEADPHONE AMPLIFIER (ATP, £59)

This lovely little thing turns the limp-wristed iPod into a true power ranger. Run a small wire from your 'Pod to this 9v battery powered gizmo and your headphones out of it, switch on and go. All of a sudden, you have a wide soundstage, confidently articulated stereo images, a powerful, muscular bass and incisive treble. The



## SLIMDEVICES SQUEEZEBOX 3 (SLIMDEVICES, £205)

So you've gone to all the trouble of ripping your entire CD collection, in full 256kbps, variable bit rate glory, to your notebook computer (Apple PowerBook G4, in my case). Here's something that unlocks your entire computer audio collection, wirelessly. The Squeezebox reads your music library and streams it off your hard drive, whereupon it plays it via decent quality DAC and analogue output stage, whilst showing artist and track information on its cool dot-matrix display. Sound is surprisingly good – not far off a Cambridge 540C, for example – and it's especially really effective as background music. You won't know how useful this is until you get one.

sense of the iPod's analogue output stage wheezing and sneezing into your headphones is gone completely, and music becomes visceral. Just don't crank it up too loud, or your blow up your headphones – or your ears.



## DENON ASD-1R IPOD DECK (DENON UK, £75)

For those moments when you're not out and about with your iPod/Xenos combo, you might like to listen to it at home through your main hi-fi system. Why so? Well, it's nice having masses of music at your fingertips (especially if you're not used to it, being a vinylist like me), and things like Podcasts, or your favourite episode of *The Shuttleworths* (which sound fine at 96kbps), go down nicely through the old valve amp and Quad 989s. What better bit of kit to make this happen than this iPod dock. Thanks to the built-in preamplifier and gold plated phono sockets, sound is better than going via the headphone output, and it also recharges your 'Pod. Nice!



## SENNHEISER PX100



## (SENNHEISER, £30)

No iPod piece about portable audio could be complete without a mention of these delightful headphones. Functionally perfect, they weight next to nothing, are comfortable enough to permit extended listening – but the real joy is their sound. They are superb – even in real hi-fi terms. Clean, neutral, open, delicate and even yet truly musically involving (even more so, in my opinion, than some of the company's more expensive 'real hi-fi' designs), these are the best £30 you can spend on audio. The stock iPod headphone stage really labours with them, but on the end of the Xenos they're dynamite.

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**ADAM SMITH**

ASSISTANT EDITOR

*No surprises from World's resident turntable geek that all of my choices are vinyl-related. I like to think that I have been good this year, so I shall make sure the fire in the lounge is well and truly out on Christmas Eve before going to bed so that no-one burns their feet coming down the chimney to deliver the following:*



**ORIGIN LIVE STYLUS BALANCE (ORIGIN LIVE, £57)**

Of course we all know that one of these is vital in setting up a turntable and, much as I love my old Garrard SPG3 gauge, I do find myself wondering exactly how accurate it is at times. Consequently Origin Live's neat little digital balance is much easier to use, clearer to read and undoubtedly more accurate. Here's an invaluable tool for setting tracking weights correctly. You might not think you need it, but analogue addicts should try living without one!



**PROJECT CARTRIDGE ALIGNMENT TOOL (£75)**

If you chop and change arms and cartridges as often as me, then a good alignment gauge is vital. I've always felt there must be a better way than mucking around with the thin bits of card that most manufacturers supply, so this impressive device from Pro-ject is exactly what I need. It is a good, sturdy unit and is comprehensively adjustable for a wide range of arms and turntables. Not only does it fulfil the need for correct alignment but also has a mirrored platform for instant headshell azimuth adjustment, which prevents me having to steal the wife's makeup mirror from her handbag every now and then!



**TURNTABLE TOOL KIT (WORLD DESIGNS, £20)**

It's all very well having fancy alignment widgets, but the actual hardware itself should never be overlooked. You need to anchor your cartridge to your headshell with true grit, and most manufacturer's bundled hardware isn't up to the job. World Designs' cartridge mounting kit is, and offers a good selection of bolts, washers and nuts for £4.99 (not pictured). These can be fitted using a precision twenty one piece toolkit, also from World Designs (£10.75, see above). They can all go into Maplin's small Raaco toolbox (RE23A - £3.99, see above).



informative and interesting website which covers a wide range of unusual vinyl players. The book encompasses all models from the early 927s to the 938 of the early 1980s with details about the decks and their accessories, plus notes on parts and servicing. A great addition to any coffee tables, especially mine.



**PROSTYLE 300 X 7" VINYL CASE (HARD TO FIND RECORDS, £40)**

You might be surprised to know that the seven inch single is back in fashion, but it's true. New sales are up dramatically, and any self-respecting cool new band is putting their new single out on seven inch. Of course, this presents yet another storage problem for the dedicated audiophile, but Birmingham-based DJ equipment specialist Hard to Find Records have a neat solution in the form of Prostyle's sturdy seven inch cases, holding quantities of 120, 200 or 300 records. Judging by how quickly my first box of 300 filled up, I'm plumping for the big one, but they do weigh a fair bit when full up!



**'DEUTSCHE PERFEKTION', STEFANO PASINI (STEFANO PASINI, 45 EUROS)**

There comes a time when even the most obsessive vinylist should put down the alignment protractor, cue up a favourite record and just relax. Well, what better way then to wind down with a history of some of the most stunning turntables ever made? This history of EMT is written enthusiast Stefano Pasini, and marks a natural progression from his

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**NOEL KEYWOOD  
PUBLISHER**

While David will be out pounding the pavements with his iPod and Adam twiddling his tonearm, I prefer a more rounded Christmas holiday period, with a good deal of reading, listening and – oh go on then – a little bit of DIY too. Being of a more sensible disposition of course, all of these come second to scoffing turkey...



**FLUKE 115 MULTIMETER  
(WORLD DESIGNS, £160)**

You never know where you are without a good multimeter, and Fluke make the best by a large margin, but they're expensive. This new jobbie costs just £160, measures to numerous digits of accuracy, has an rms convertor, can measure Volts, Amps, Ohms, capacitance, frequency and will withstand up to 600V from a valve amp before exploding. So it may last until next Christmas, by which time I hope they'll have a 1000V version available...



**'SELF ON AUDIO',  
DOUGLAS SELF  
(WORLD DESIGNS, £26.50)**

I did want Doug's new book, plus a bearded effigy and a tin of pins, to placate myself every time he started to rant about subjective reviewing. But it comes without the politics, which is disappointing! Instead there's mountains of copy on

audio electronics that's thoroughly researched and genuinely original. Included are preamps, including low noise MC types and RIAA, balanced connections of many differing varieties, output stages, distortion types and even probability density functions, something to have me puzzling over the pudding.



**SOLDER STATION, WELLER  
WHS-40D  
(WORLD DESIGNS, £100)**

Here's a tip. Ever wondered why the normal rules of physics don't apply when trying to melt silver solder? The reason is that ordinary soldering irons are about as effective as using a box of damp Swan Vestas matches. If you need heat, serious heat, heat of a, ermm, hot disposition, then surely a variable temperature solder station like this one is the order of the day – it makes DIY leads a doddle. Ouch!



**ILLUMINATED BENCH  
MAGNIFIER  
(WORLD DESIGNS, £60)**

I didn't realise until comparatively recently that had I always used one of these, then all the strange faults that plagued my Vero board prototypes and resulted in nights of anguish might have been avoided. Strong light and x5 magnification combine to reveal solder bridges, whiskers, dry joints, weak joints and other nasties. I now want the best one possible, to grab my nocturnal life back.



**JIMI HENDRIX BOX SET  
(DIVERSE VINYL, £85)**

Okay, I know the thick end of a hundred quid is a bit stiff for some vinyl LP records, but if you've got a highly fettled Garrard 401 sitting there waiting for action, you deserve to splash out once in a while, and what better time than Christmas. This box set is lovely; completely remastered and cut on to 180 gram virgin vinyl to audiophile standards, Jimi suddenly sounds rather better than my worn out originals. There should be plenty of time on Boxing day to hear Hendrix do it all over again, and this time he'll sound brand new.

**INVISIBILITY CLOAK  
(PRICE & SUPPLIER TBA)**

*(invisibility cloak)*

True story: I bought a house recently - or thought I had - with a perfect lounge. Then the other half realised I planned to move in "the broom cupboards" and promptly pulled the plug. To avoid this happening again I want an invisibility cloak for Christmas to cover my hi-fi. This is due on the market soon, when the manufacturers can find their stock.

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**WORLD DESIGNS**  
+44 (0)1832 293320  
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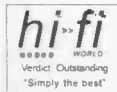


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## STEVEN GREEN, CONTRIBUTOR

*As eagle-eyed readers might have noticed, I'm more than a little preoccupied with broadcasting matters. I am well aware that I have been known to pontificate at length about arcane digital formats, so why change this just for Santa? And so, to make my Christmas truly merry and brighten up my New Year, here's what I'd like...*



### HUMAX PVR9200T (247ELECTRICAL, £182)

Although the elusive reasonably priced Freeview PVR with integrated DVD recorder hasn't yet materialized, this PVR is the next best thing. It offers a relatively big 160 GB hard drive (enough to store around 100 hours of TV recordings), twin-tuner (so you can record one thing and watch another), picture-in-picture display and chase-playback (where you can start watching a programme from the beginning while it's still being recorded). But its stand-out feature is that it has a USB 2.0 connection which allows you to transfer TV and radio recordings to your PC for possible burning to DVD afterwards. This also allows you to store photos onto the hard drive and display them on your TV, and it will also playback MP3 files as well.



### HUMAX HDCI-2000 (HISAT, £217)

Got an HD-Ready display but don't want to fork out for an expensive Sky HD subscription? The Humax HDCI-2000 satellite receiver will at least allow you to experience broadcast HDTV now without having to spend a penny on subscriptions. It supports all the standards needed for HDTV for the foreseeable future, such as the new MPEG-4 H.264/AVC video codec; both 1080i and 720p HDTV resolutions; HDMI output and Dolby Digital surround sound. It doesn't support the 1080p

resolution, but we probably won't see 1080p for several years, and the vast majority of HD-Ready displays can't take full advantage of 1080p anyway. The BBC HD channel on satellite is freely available for anybody to watch that has a suitable satellite receiver, such as this Humax. It doesn't have much content at the moment, but the Beeb has committed to producing everything in HD by 2010, so the amount of content on offer should increase over time.



### DUALIT KITCHEN RADIO (GOSHOPDIRECT, £180)

The amazing chrome plated extravagance is – in my view – the best sounding DAB portable to date. Not only does it offer superior sonics to pretty much everything around, but it is built and finished well (and this is in a market full of plasticky pieces of tat). It really lifts your room, and your mood. The downside is that it doesn't perform at all well on FM, so don't buy this if you're in a marginal Digital Radio reception area and can't switch to DAB any the time. The beefy 8W speaker is full and rich sounding enough to warm my winter nights.



### MAGICBOX THE IMP (TRIBALUK, £125)

Despite it offering a lot more stations, I just can't seem to find any stations on DAB that I would want to listen to that aren't already available on FM. To solve this problem, an ideal Xmas present for me would be one of the increasing number of Wi-Fi Internet radios, where there's literally thousands of stations catering for all genres under the sun. I've chosen the Magicbox Imp Wi-Fi Internet radio, because it looks virtually identical

to the highly regarded Acoustic Energy Wi-Fi radio, but it's significantly cheaper. It also supports the MP3, WMA and AAC formats, so I'd be able to stream audio files from my PC as well once I've tried all of the 17,000 Internet radio streams available on shoutcast.com.



### PRINCIPLES OF DIGITAL AUDIO, 5TH ED., KEN POHLMANN (AMAZON, £23)

A wonderful book, the fifth edition of which has been revised to include more recent topics such as MPEG-4 audio, HD-DVD and Blu Ray, and with a broader coverage of perceptual audio coding (i.e. the theory underpinning and explanations of the low bit rate audio codecs, such as MP3, AAC, WMA etc). It's like having a Wikipedia of digital audio at your fingertips, but rather than it being written by a few thousand people who may or may not know what they're talking about, this is written by a professor and world renowned expert in digital audio. Topics covered include the fundamentals of digital audio, an introduction to DSP, the various media used to store audio, such as CD, DVD etc, perceptual audio coding, PC and Internet audio, broadcast audio, A/D and D/A conversion, and it covers pretty much every digital audio format you've heard of. A great resource to have.

#### STEVE'S CONTACTS

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# Entre Nous

Just between us, David Price thinks Eera's DL1 CD player is one of the most intimate sounding silver disc spinners he's heard in a long time...

**W**hen I am asked to pinpoint precisely what I don't like about CD, I sometimes find it hard. Certain modern models, even at very modest prices, make a decent fist of translating those digits on the disc to analogue electricity, but there's still the sense of 'sameness', of homogeneity, regardless of what you play. All things considered, when push comes to shove, I am afraid that listening to CD sounds like precisely that, as opposed to listening to music.

At the risk of a chorus of groans from the hoards of our digital using (and loving?) readers, when I put on an LP record I first get the sense I am listening to the music 'inside' the disc, then the disc itself second. This is rather odd, because there is so much more on LP to draw your

attention to the disc itself – snap, crackle and pop to name but three. Still, the resolution of the original analogue music signal is such that despite all these distractions, your brain locks onto the music and 'processes' all the other ephemera out.

Now, the reason I think this particular CD spinner is special, is that there's just a touch of this latter process happening. It lets you listen 'in' to the music much more than is normal with digital disc, hi res or not. In certain other respects I don't like it (and I'll say why later), but what it does do, it does in a highly distinguished way. And given that I personally go for musical fluency more than I do traditional hi-fi attributes (hence my analogue addiction), then the Eera DL really floats my boat.

Perhaps it is no coincidence

that it is GT Audio who imports the French designed and built Eera in the UK. Graham Tricker is a man for whom I have lots of time. First and foremost, he's the whiz behind the Leak Troughline tuner mods., and a total tube nut, but also has a penchant for fast motorcycles, and must surely be the only valve amp owning Yamaha R1 rider around! He describes the DL1 in an extremely complimentary fashion. Well, this wouldn't quite be the first time a distributor has 'talked up' his products, but actually in this case, I think GT has a right to.

The key to this player, both in engineering terms and the ensuing sonic ones, is the transport. Going to back to the aforementioned motorcycles, Eera says that one should think of a bike travelling at very high speeds, and how the damping affects stability. "If the



"what it does with immense skill is play music..."

vibrations flow out without returning and causing jolts on the recorded surface, it's obvious that the track will be easier to follow", says the company.

Enter Eera's Gyropoint system, from designer Didier De Luca (ex-Helios). The mech. is a stock Philips CDM12.10, with trick suspension courtesy of Eera (and the company has taken out many patents accordingly). Looking inside, this has been done conscientiously, too.

The other part of the Gyropoint package is jitter elimination, thanks to rewriting "a great part of the software... conferring acuity of reading and an extracting rate never reached at this time". Further down the datastream can be found a 24bit, 128 times oversampling DAC upsampling to 384kHz.

Now for my first gripe. I don't think - despite the obvious work done inside - that the Eera is a terribly well built CD player. It's a bit too 'cottage industry' for my liking. The 7kg box doesn't have Japanese standards of fit and finish (a Marantz SA7100KI Signature at £600 appears far better made and finished, for example), and the folded, pressed steel casing that's been

powder coated isn't as elegant as you'd expect for two grand. Naim Audio, for example, achieve far better with the CD5's steel wrapper at under half the price. Still, consensus of opinion in the *Hi-Fi World* office is that the gloss black Perspex fascia is very nice, although to me it looks a bit *gauche*, as does the bright blue display (so predictable). Still, at least it's uncluttered and easy to use.

Worst of all is when you press the 'open' button and the disc drawer groans and shakes its way out... The mech. may be special, but the disc loading action is the opposite. As for the remote, the less said the better - the ones coming with Cambridge Audio kit at one tenth of the price would shame it. Around the back, it's minimalism in extremis; line level RCA phono outputs, a coaxial digital out, and IEC mains in with power switch.

### SOUND QUALITY

This is a fine sounding CD player by any standards. It's not particularly distinguished in a couple of areas, but there's one thing it does with immense

skill, which is to play music. Cue up Steely Dan's 'Aja' disc, and you can hear it from the opening bars of 'Home At Last'. Instead of the usual excellent digital facsimile of a piano which comes with most £2,000 CD players, you hear what is one of the least digital and most natural recreations of a piano around outside the analogue domain. Timbre is really nice, and you get a sense of it being a real, tactile instrument instead of a high quality digital sample. More importantly however, are the spaces between the notes, which are beautifully judged. Again, the Eera is highly distinguished in this respect. In timing and texture then, it is superb. Lovers of this particular piece





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will know that very quickly, the bass guitar and drums kick in, and it's here that the Eera grabs things by the scruff of the neck. The machine is very good in the bass. It is strong and confident low down (although does nothing that would worry any classic Japanese battleship player), but it isn't the sheer quantity of bass that appeals, but the quality. It is the way it is so deftly woven in to that exceptionally liquid midband that seduces so. The track kicks off with a real sense of purpose, like the band know where they want it to go – it's not just a loose 'ramble' through the notes...

As World of Twist's 'Sweets' begins, you can hear its magic again. A largely electronic track, courtesy of producers The Grid, it doesn't have any special sounding acoustic instruments to enjoy, but still gels better than it has a right too. Again, the midband is a joy - in this case the recently deceased Tony Ogden's vocals are exceptional. Instead of being wiry and two dimensional as his voice can often be with even quite expensive kit, it is as smooth as Bailey's Irish Cream, and hovers eerily in space between the speakers. The Eera really shouldn't be doing vocals like this; it reminds me of the £6,000 Chord BLU/DAC 64 combo.

Once again, whilst that vocal hovers lazily, the rest of the mix is superbly rendered, with oodles of space between the drum kit and the album's trademark keyboards. This is another delight – the Eera projects elements out of the mix really deftly, creating a widescreen soundstage inside which the various instruments are locked securely. It's a big, bold, confident midband, but – wonder of wonders – without the slightest hint of hardness.

With a spacious midband and a fultone yet deftly articulated bass, you'd be forgiven for thinking the Eera would do well with jazz, and so it was that I loaded Sonny Rollins' 'Alfie's Theme' into its wobbly disc sled. The result was joyous. I have to say, I really don't enjoy jazz on CD as a rule, but the DLI wasn't having any of my conceit. Rollins' opening tenor sax was a delight. Beautifully vibrant, sonorous and alive, yet not bright or searing in any way – and I have to say this particular late eighties Impulse CD can all too easily go that way. Walker Booker's bass was strangely easy to follow, lacking any mechanical quality whatsoever, and it pushed along the song with real force.

It was only Frankie Dunlop's tickling of the hi-hats that drew me to fault the Eera DLI in any way. To



my ears at least, the high frequencies are a tad dull. This isn't an unpleasant effect at all, and marries well to the delightfully smooth bass and midband, but it lacks bite. Audiolab's 8000S, at less than one third of the price, has more precision and grip up top. This isn't to say that hi-hats are diffuse, as they time beautifully and integrate with the rest of the mix, it's just that they lack sparkle. Once again, classic Japanese battleship machines such as my Sony CDP-X77ES (with, in real terms, the same retail price), offer far more insight into the sound of the stick hitting the metal. By contrast, the Eera feels like wearing sunglasses at night – slightly too much glare reduction.

This is welcome with many discs, and certainly nobody ever liked a CD player that veers towards brightness, but it does predispose the machine to more subtle, intricate music. For example, the processed pop of the Spice Girls' 'Two Become One' was superbly rendered, all soaring strings and layer after layer of vocal harmony in three dimensions, but the hard-edged strains of Elektric Music's 'Show Business' didn't quite have the bite that it might.

I found this was more of an issue with some classical music. A Deutsche Grammophon reissue of Haydn's 'Creation' sounded lovely, but lacking in air and space. Although the DLI is an extremely musically informative player, it lacks that last nth degree of 'back of hall' detailing that other cheaper designs (like the Quad's superb 99CD-P2, for example) possess, and I think this is partly down to its subtly veiled sounding high treble. Still, this is more of an observation than a criticism, and intelligent matching with interconnects (I used Supra's superb new Sword, which is a very detailed and

explicit cable, in this instance) largely ameliorates it.

### CONCLUSION

Overall, I was beguiled by this curious black box. Before I powered it up I took an instant dislike to it – its external build and finish are below par at this price, and I'm not a fan of the 'eighties throwback' (Inca Tech or Magnum, anybody?) styling. However, thankfully you don't have to look at it while you play it, and indeed you wouldn't want to, as it is distractingly musical. Its sound is extremely organic – and it's achieved by obvious attention to detail in design, rather than just by sticking a tube output stage on the end of it to soften up an average sounding CD player.

Between you and I, I was sorely tempted to deduct a globe for its general operational clunkiness and poor remote, but I'm going to give Eera the benefit of the doubt (easy when you listen to it) and give it the full five. *Magnifique!*

**VERDICT** ●●●●●  
Operationally quirky, but the sound is seriously special. Musically lucid like few others anywhere near the price.

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### MEASURED PERFORMANCE

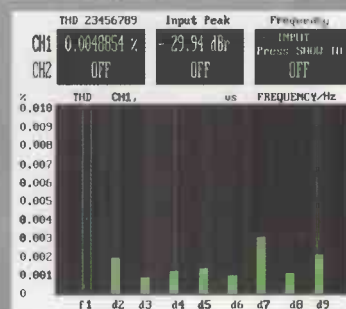
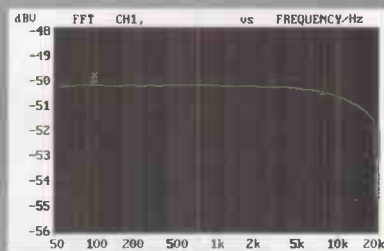
As our convolved impulse response analysis shows, the frequency response of this player has been quite strongly rolled down at high frequencies, measuring -1dB at 17kHz. This degree of high frequency cut is unusual and results in an obviously smoothed sound, although that is not to say overly warm or dull. In that it can be a reflection of filter damping (Q) it can also signify a less zingy and resonant treble than is common.

Output was an unusually high 3.5V, way above the 2V set by Philips. This will help the player stand out in a showroom dem. Distortion levels were reasonably low, but upper harmonics existed and may add a little edge to the sound. The IEC A weighting used in EIAJ Dynamic Range analysis eliminated these, giving a good result all the same.

There was significant programme related jitter on the digital output, measuring around 200pS - an unusual weakness. This is normally re-clocked out.

The Eera DL-1 is a little unusual in what it does, but it measures well enough all the same. NK

Frequency response (-1dB)	
CD	4Hz - 17kHz
Distortion	
0dB	0.0012%
-6dB	0.0016%
-60dB	0.47%
-80dB	3%
Separation (1kHz)	120dB
Noise (IEC A)	-111dB
Dynamic range	111dB
Output	3.5V



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# Wild Thing



**Although not quite as crazy as the Greek goddess of the same name, the Artemis PH-1 is a charismatic contender, says Noel Keywood...**

**V**alve phono stages are arriving in the market thick and fast these days. I've used one for many years within a World Audio Design KLPP-1 valve preamplifier, so know the breed and am a firm believer. They give a beautiful sound from LP, clear, very dynamic and with a natural purity that only valves possess. Then there's that fabulous sound staging - but I won't go on! In our last issue I reviewed the excellent Eastern Electric Minimax valve phono stage; here is another example of the breed, the PH-1 from Artemis Labs of California.

In my Minimax review I mentioned that the Artemis PH-1 sounded similar, but that is not to say the same. I ran the two alongside each other for some weeks and both sounded lovely; there are some major differences though. The PH-1 is priced at £2,195, double that of the Minimax. Curiously, in light of this, it lacks the latter's ability to match low

output, quality moving coil cartridges, unless they have high output.

Let me go over some of the limitations of valves that push designers in certain directions when designing a phono stage, to get the PH-1 into perspective. The greatest drawback with valves is noise, meaning hiss rather than hum. Hum can be eliminated, but hiss cannot. This isn't a problem with high output moving magnet (MMs) cartridges but it is with low output moving coils (MCs). Most people buy an expensive, specialised audio product like this because they want the very highest sound quality from LP, so the natural partner is a good MC cartridge. We seemingly have a contradiction here then.

One solution is to use a low noise transistor or FET up front - not common. The other is to use step-up transformers, as in my KLPP-1 and the Eastern Electric Minimax. This is the purest solution and most common, but the transformers must be top quality - meaning expensive.

Which brings me to the PH-1; they don't use any front-end amplification or step-up transformers to overcome input noise. As a result, the PH-1 comes with the somewhat ambiguous qualification: "for High Output Cartridges". The difficulty here is knowing exactly what such a beast is. The PH-1 is purposed for MMs, having an input impedance of 47kohms to suit. However, shunt resistors can be fitted to lower this to suit moving coils and typically 100ohms would be hooked up on both channels.

So does it suit high output moving coils too? As MCs come in a wide range of outputs, from MM type output levels of a few mVs (millivolts) downward this is a question without a definitive answer, which leaves users up in the air. Artemis mean high output Dynavectors like the 10X and 20X and the high output Goldring Eroica, to name a few. These have outputs of a few millivolts. Below these lie 'healthy output' moving coils like Ortofons, of around 0.5mV output.

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I used the PH-1 with an Ortofon Kontrapunkt b (£750) and Rondo Bronze (£499) moving coils, and was aware of noise. It wasn't overpowering but I suspect many potential purchasers would find it unacceptable. Specifically, it wasn't hiss so much as general low frequency flicker noise, a sort of random rumbling, popping sound that was likely coming from the first 6N1P valve (or should I say tube?). So the PH-1 is arguably best suited to moving magnet cartridges and very high output MCs, the latter not sounding much like an MC to me, largely because they have too many coil turns I suspect.

I launch into all this first because it is a bit difficult to place the PH-1 in the market place. It is a very high quality valve design all right, but Artemis have not purposed it for MCs, which is unwise. When competitors like the £1,055 MC-friendly Minimax are around, and because valves on their own are too noisy for quality moving coil

part of designing a phono stage: getting enough low frequency gain. Sure enough, this stage reaches right down to 4Hz, no less! From there its frequency response extends smoothly, within about 0.2dB, right up to 50kHz - not bad. Having done this design work myself in the past I know that ensuring RIAA is correct from subsonic frequencies up to supersonic ones is taxing; Artemis have put some effort into this then - and I could hear it. The PH-1 has massive ability to retrieve low frequencies and deliver real bottom end heft. The Scissor Sisters' 'Ta Dah' album strode along with a sense of seismic authority that the Minimax does not quite manage, although in a direct comparison it sounds punchy and lithe. Strong low frequency gain can result in wallow at times, depending upon your system. Record warps are suppressed by the Minimax but not by the PH-1, so your arm/cartridge combo matter.

All this was with an Ortofon Kontrapunkt b mounted in an

Going' had Collins firmly placed centre stage and the opening drum sequence delivered with reverberant impact that was delicious to listen to. The natural sibilants in his voice pierced out with a tad more sharpness and laceration than I heard from the Minimax, when using the Goldring MMs whose styli mine this information more readily than most. It was here I noticed the PH-1 had a little more strength to its high frequency delivery and slightly more insightful detailing than the Minimax. All the same, the two were not worlds apart.

The PH-1 sits toward the top end of the tree as phono stages go. It sounds utterly superb and is carefully engineered for near perfect results. If you want to hear what vinyl can deliver it has to be through a phono stage like this one. The only reservation I have is that the PH-1 is expensive and yet is unsuitable for top quality moving coil cartridges, something of a contradiction I feel.



"a super high quality phono stage with translucent midrange, superb imaging and intricately detailed treble..."

cartridges, the PH-1 finds itself in a conceptual predicament.

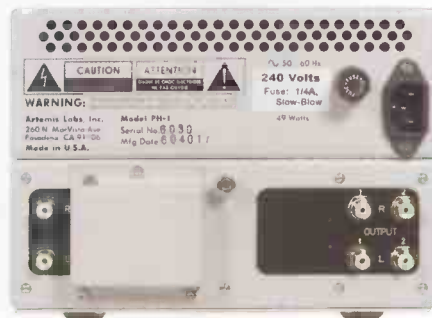
All this apart, it is impressive. Whilst the Minimax can be picked up by one hand the PH-1 is an altogether more substantial item weighing 24lb (11kg). It has a chunky machined alloy front panel and grey casework. There is a single pair of phono socket inputs - gold of course - and twin output sockets. The preamp is solidly built and well finished.

Artemis take output from the anode of a 5687, rather than using a low output impedance cathode follower as a line driver. Again, like not using input transformers, this is a design decision I would not take. Output impedance is a high 1.3kohms as a result, so short signal leads are needed for connection.

On the matter of sound quality I could tell straight away that the PH-1 was accurately equalised. The arresting 'heartbeat' introduction of 'Speak to Me' on the Pink Floyd's 'Dark Side of the Moon' (30th Anniversary Edition - natch!) shook my room firmly; the big Tannoy's were in their element with the PH-1 feeding them. I guessed Artemis had paid attention to the most difficult

SME312 on a Martin Bastin plinth the size of the Acropolis - well, almost. There's almost as much marble beneath it I'd swear, to give my Garrard 401 a good grounding. With a medium output moving coil like the Kontrapunkt b the PH-1 was a bit noisy and obviously lacked gain; volume had to be turned right up. With my Goldring 1042 MM cartridge, or this month's Goldring 1012GX review product, the PH-1 was quiet enough though.

With the Ortofon and this month's review MMs the PH-1 showed it is a super high quality stage with a translucent and highly detailed midrange, superb imaging and fine, intricately detailed treble. Spinning Phil Collins' 'I Don't Care Anymore' on a new 180gm pressing of 'Hello, I Must Be



**VERDICT** ●●●●●  
Extremely musical and insightful design, but pricey and lacks MC compatibility.

**ARTEMIS PH-1** £2,195  
The Audiophile Club  
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www.theAC.co.uk

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**MEASURED PERFORMANCE**

The Artemis PH-1 was accurate in its equalisation right down to 4Hz, its lower -1dB limit. From 5Hz up to well above 20kHz our analysis shows equalisation is correct within 0.2dB - impressive.

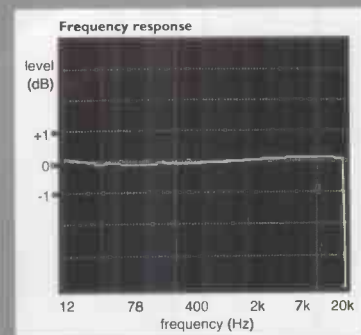
Gain measured x590, enough for any moving magnet (MM) cartridge, but barely enough for any moving coil (MC), except those with very high output. Input impedance is 47k ohm as standard, correct for MMs but too high for MCs. This can be reduced by parallel resistors though. Maximum output swing was a huge 50V and distortion less than 0.01%.

Input noise calculated out at 0.92uV, a little above the low-high range of 0.3-0.8uV expected from quieter solid-state, but this is about right for valves. There was some hum (2mV) and also some erratic low frequency noise (flicker noise) that reached 3mV total, sufficiently high to be audible with

volume up, so the PH-1 is not as quiet as possible today.

The PH-1 measures well, but it is not a low noise design. NK

Frequency response	4Hz-50kHz
Separation	68dB
Noise (e.i.n.)	0.92uV
Distortion	0.01%
Gain	x590
Overload	50V out (85mV in)



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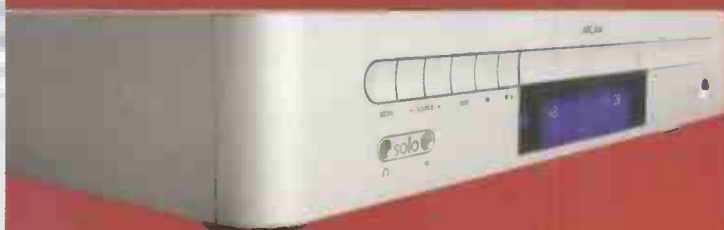


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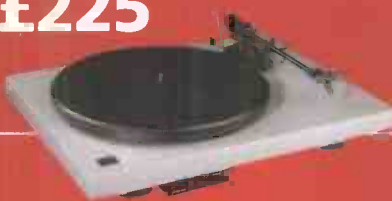
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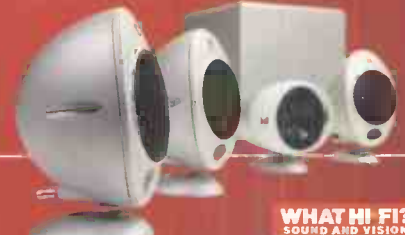


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**WHAT HI-FI?**  
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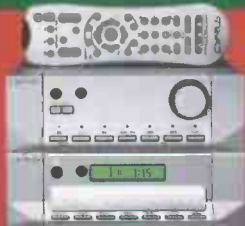
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# Heart of Glass

Being a fully specified 300B integrated amplifier for just £1,700, Adam Smith thinks the Icon Audio Stereo 300 has got a lot of bottle...

**T**he big problem with precision valve amplifiers is that they require careful design and intricate manufacture of the kind that results in somewhat wallet-busting price tags. Fortunately, companies like Icon Audio are taking the increasingly popular and eminently sensible method of designing the unit in the UK and making use of the low costs and excellent engineering abilities of a Chinese manufacturer. In the December 2006 issue, we were impressed by the build quality and value for money offered by their Stereo 40i Classic KT88 model, but we have now decided to spoil ourselves with a listen to Icon's top of the range integrated, the £1,700 Stereo 300.

On first acquaintance, the Stereo 300 more than announces itself as heavyweight, literally and metaphorically, as it weighs no less than 37kg. This makes unpacking a two person job to achieve safely and is also more than enough to have the average hi-fi rack quivering at the mere thought of having to support it. As found with the Stereo 40i Classic, build quality is excellent and the whole unit is covered with a glitter-effect, glossy black paint finish which ticks all the style boxes for me. I even like the four blue LEDs fitted under the base which give a gentle illumination to the underside of the amplifier, despite them being uncomfortably reminiscent of the under-chassis neons found on boy racers' Citroen Saxos in Halfords car parks up and down the country!

The amplifier has four line level inputs and a true tape monitor loop, and Icon manufacture the PSI phono stage if you wish to use a turntable with the Stereo 300. The unit is

even supplied with a remote control handset with which volume can be adjusted, or the unit muted, and this is no cheap and plasticky afterthought, but a weighty and stylish metal unit. As the name suggests, the Stereo 300 uses 300B output valves in push/pull to generate its 32W per channel and our review unit also had the optional HT delay circuit fitted.

## SOUND QUALITY

The sublime tones of Rebecca Pidgeon's version of 'Spanish Harlem' through the Stereo 300 instantly transported me to a land of lush valve wonderfulness and served to remind me that this really is a superb way to listen to music of this nature, as the song flowed beautifully.

300B valves are well known for their smooth and warm sound and the Stereo 300 made superb use of this property to add real emotion to the performance. The midrange was lush and detailed without ever becoming overblown and the Stereo 300 maintained this sense of composure with a variety of different vocal styles. Runrig's 'An Ubhal as Airde' from their 1987 album 'The Cutter and the Clan' has Donnie Munro's delicate and intimate singing of the song's verses interspersed with an impressive choral crescendos in between and the Icon made a superb job of switching between these with no sense of discomfort.

I was also struck by how big the soundstage was - the Stereo 300 gave these pieces of music an almost vinyl-



like scale and sense of perspective and, comparing it to a couple of other amplifiers we had sat around the listening room, they sounded small and almost shut-in by comparison. Changing the mood of the listening session by spinning some Michelle Shocked, 'Quality of Mercy' again served up a treat of a vocal performance but the underlying beat of the track become more of a 'plod' than I was used to. The Icon seemed to have depth in its bass here but subdued impact, which meant that the punch of the main beat was largely lost.

Shifting up a gear or three courtesy of the Propellerheads' 'Take California' revealed that the Stereo 300 is most definitely not an amplifier for headbangers or dance fanatics - the thunderous beat was presented with reasonable weight and the amplifier just about kept up with the pace, but the low frequency end of the track ended up as something of a muddle.

Switching to the title track of Steve Earle's 'Copperhead Road' gave the same result with the quite explosive couple of drum beats in the lead-in of the song almost falling out of the speakers, rather than being punched out as they should. The





other aspect of this track that struck me was the strummed guitar at the beginning - this is very detailed but is quite sharp as measurement shows that the CD contains genuine output up to 20kHz, and an unforgiving transistor amplifier can make it quite a painful experience. The Stereo 300 took the edge off the sting very well but in the process also seemed to remove the leading edges of the notes, leaving the guitar almost acting as a backing instrument rather than being the mainstay of the underlying rhythm.

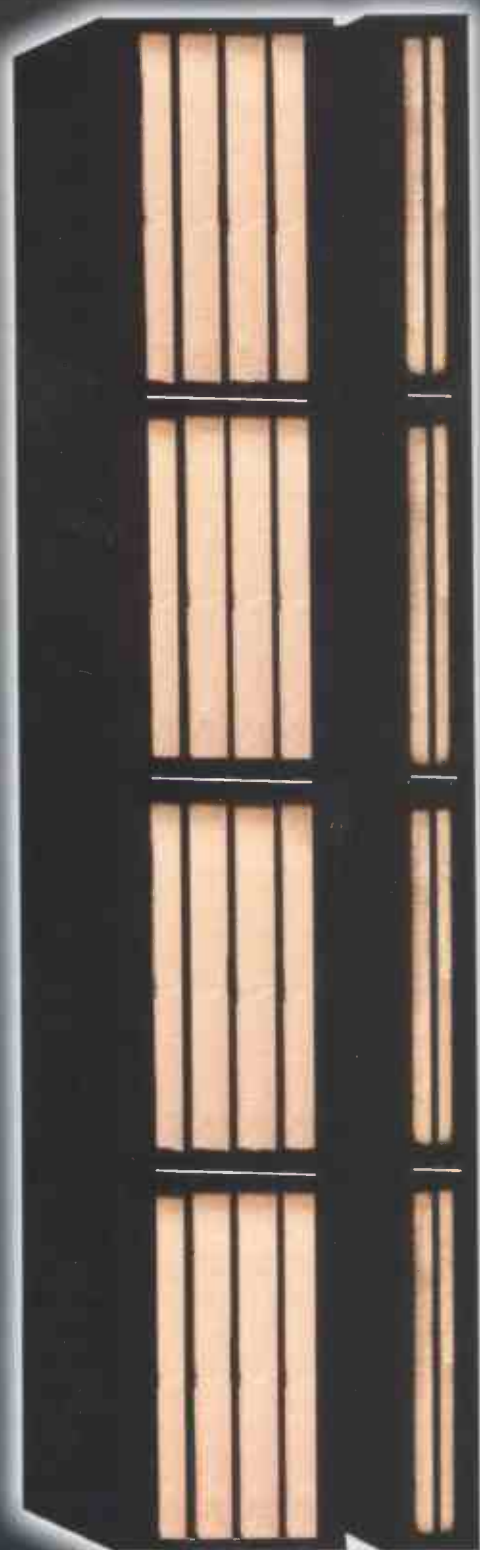
In an attempt to delve further into the treble situation I loaded up the track 'Tiden Bara Gar' from an unnamed test CD that found its way into my collection some years ago! This track starts off with some intricate double bass playing, developing further with subtle percussive backing effects including a very delicately tapped triangle and this time they were all there, loud and clear. It soon became apparent that the Stereo 300 is more than

capable of digging the subtle high frequency details from a song, but at the same time it has a strange tendency to wash over some of the more obvious effects present in the mix, which can leave some music with a rather unusual balance. Furthermore, the double bass at the start of the song was very detailed but had a pronounced 'bloom'.

### CONCLUSION

Ultimately I found that the Icon Audio Stereo 300 left me rather perplexed, particularly when taking into consideration the Stereo 40i that was reviewed in December 2006's amplifier group test, and which was still available in our listening room for me to refer back to. The Stereo 300 does offer an increase in warmth and

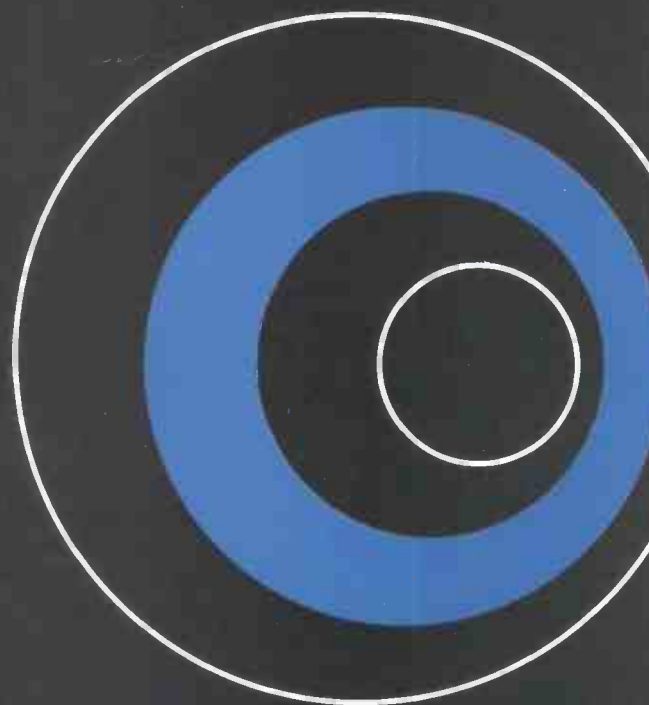
soundstage from its 300B output valves over the KT88's of the Stereo 40i but it ultimately exhibits the same overall character of sound as its little brother, and I consequently can't help wondering if it is worth the extra £800 over its smaller stablemate. On the positive side of things, the Stereo 300 has a superb sense of scale and a large, warm soundstage that adds



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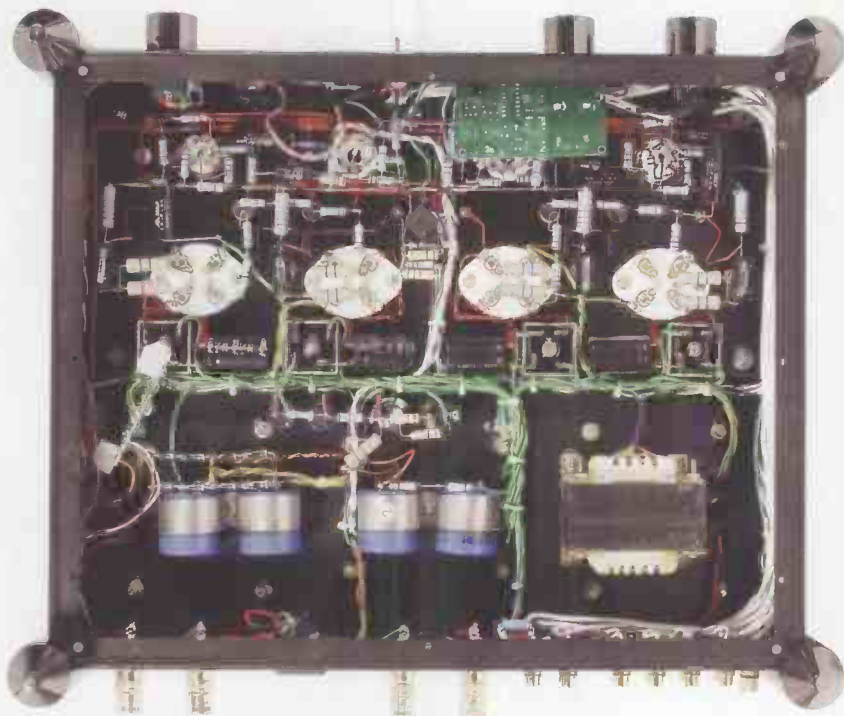


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real atmosphere to vocal, orchestral and live recordings. Midrange detail presentation is very good and the overall character of the unit is the almost textbook definition of a warm and cuddly valve amplifier that will undoubtedly appeal to a traditional 'valves and horns' enthusiast, of which I know there are many out there!

Unfortunately the Stereo 300 also exhibits those other traditional valve amplifier traits of inconsistent, if sweet, treble and poorly defined bass - a disappointment for me. As today's bass units are 4-6 Ohm units, the 8 Ohm output is likely one reason for this. A large, well acoustically damped 8 Ohm loudspeaker is needed but such designs are rare nowadays. Ultimately, the Stereo 300 is a device that never goes so far as to make any offensive noises and is ultimately relaxing and pleasant to listen to.

I can see its archetypal valve sound finding favour with many listeners and if you like your music presented this way and have plenty of classical or vocal material in your

record or CD library, then you should certainly put the Stereo 300 high on your audition list. If, like me, your musical tastes veer from one

- loudspeakers, then you'll have a beautifully made, superb value 300B amplifier.

"the Stereo 300 gave music an almost vinyl-like scale and sense of perspective.."

end of the spectrum to the other and include dance and rock music as well as the aforementioned classical and female vocalists, you may find that the Icon really doesn't quite cut it as a jack-of-all-trades. My advice would be to audition carefully to see if its particular areas of strength are ones that are important to you. If its presentation suits your tastes and - importantly



**VERDICT** ●●●£

A pleasant sounding and competent amplifier, but one that is inconsistent at frequency extremes and only really shines with certain types of music.

**ICON AUDIO**  
**STEREO 300** £1,700  
 Icon Audio  
 ☎ +44 (0) 7787 158791  
 www.iconaudio.co.uk

- FOR**
- exquisite midrange
  - large, open soundstage
  - superlative build quality
- AGAINST**
- poor bass control
  - inconsistent HF performance

**MEASURED PERFORMANCE**

The Icon uses 'fixed bias' operation to get 32W from a pair of 300Bs working in push-pull. Fixed bias gives more power than the more common Auto Bias method, but bias must be re-adjusted on occasion, and when new valves are fitted. There is no 4ohm tap, just one 8ohm winding. A single winding gives more efficient coupling, but this one did not work especially well with a 4ohm load; distortion levels rose and power dropped to 25W. It is possible to design for 6ohms nominal and get better matched results into 4ohms, which is important nowadays.

The 300B is a directly heated triode; it has no cathode, so it hums. I guessed from the very low measured hum output of this amplifier (0.8mV) and the absence of hum buckers that it uses d.c. heaters to avoid hum, but this shortens valve life. Removing the bottom cover revealed multiple heater rectifiers - interesting.

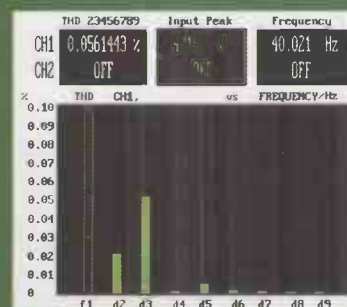
Distortion levels were low, especially at 40Hz, being primarily third harmonic in nature as our analysis shows; the transformers swing full bass output adeptly and are of good quality. A low damping factor of 6 means loudspeakers that are in themselves

well damped are most suitable.

Bandwidth was wide, measuring 11Hz to 40kHz within 1dB limits, with no random hf peaking. And sensitivity was a high 370mV.

Icon's Stereo 300B measures well. It isn't quite as optimised as is possible nowadays, but it works well all the same. NK

Power	32watts
CD/tuner/aux.	
Frequency response	11Hz-40kHz
Separation	67dB
Noise (IEC A wtd)	-90dB
Distortion	0.05%
Sensitivity	370mV



# Size Matters

It's the classic speaker buyer's conundrum, big or small? Channa Vithana pits Monitor Audio's new RS8 floorstander against Usher's X718 standmounter...

**T**he eighties brought us strong ideas on system set-up, wiring and speaker placement. A new breed of high quality standmounters appeared, such as the original Wharfedale Diamonds, designed with bespoke stands in mind that gave fantastic performance. Then, in the early nineties, came a new genre of quality floorstanders, such as Mission's classic 752, which caught on like wildfire. Given the choice of spending £1,000 on a pair of small boxes and a pair of big ones, people seemed to plump for the latter, even though floorstanders can have unruly bass; they are more variable than standmounters. How do the (£800) Monitor Audio RS8 floorstanders and the Usher Audio X-718 standmounter (£740, plus stands, obviously) stack up against each other in view of this? Both manufacturers have impressed us in the past, Monitor Audio with their fine floorstanding GS60s and Usher with their excellent stand mounting S-520s.

The Silver RS8 is MA's latest mid-priced contender and their top Silver model. Compared to its predecessor, the S8, it is more eye-catching, as the front baffle features attractive semi-curved drive unit chassis plates instead of the previous black, squared-off ones. The RS8 comes in smart real wood veneer finishes and there is a choice of Black Oak, Rosenut, Walnut, Natural Oak and Cherry. It features three six-inch (approximately 152.5mm) 'C-Cam' drive units; one midrange and two bass.

For the treble, a 'Gold Dome, C-Cam' 25mm tweeter, similar in performance to the Gold Reference version, is employed. 'C-Cam' is an acronym for Ceramic-Coated Aluminium/ Magnesium. MA says it was originally developed by the aerospace industry for use as blades in jet engines, but exhibits ideal qualities for use as a tweeter dome. Monitor Audio isn't the only manufacturer using magnesium/aluminium alloy; Focal JMLab also uses it for tweeters on their Chorus V series.

There are two ports, one on the rear panel at tweeter height and another below the lowest bass driver on the front panel. The binding posts allow for bi-amp/bi-wiring options. There are excellent spike attachments at the base for levelling and stability; you have the option of padded discs for hard wood floors or spikes for carpets, and both are easily adjustable thanks to well designed thumb-operated locking-nuts. Vital statistics are 900x270x185mm and 21kg.

The Usher Audio X-718 incorporates solid-birch side panels and piano gloss centres, making it materially even more desirable than the MAs. The Usher range is designed by Dr. Joseph D'Appolito, a prolific worldwide loudspeaker designer and Usher's consultant since 2000. Dr. D'Appolito holds many degrees from RPI,



"whilst the MAs turned in a typically crisp, expansive sound, the Ushers were far more music dependent..."

have the Usher logo uniformly centred. The X-718s (and matching Usher stands) are uncannily similar aesthetically to the Sonus Faber Concert series of loudspeakers from around the mid-nineties which also had a slanted front baffle and subtly designed wood side panels with four fixing covers. Usher says the slanted front baffle improves the time/phase alignment and further reduces cabinet resonance.

The X-718s feature an '8945P' 7-inch (approximately 178mm) mid/bass drive unit which has an aluminium silver phase-plug in the middle. The mid/bass driver features a heavily damped carbon fibre impregnated paper cone, which Usher says has been, "proven to be free of (resonances) normally associated with stiff paper cones". The '9950-20' tweeter measures 1 inch (approximately 25.5mm) diameter and there is a port at the slanted rear panel which is situated at tweeter height. High quality binding posts allow bi-amp/bi-wiring.

The X-718s are available in Piano Black, Silver, Yellow, Claret and Ivory finishes, measure 255x407x390mm and weigh 12.5kg. Optional Usher stands, some which can be bolted into the X-718s include; £325 RWS-708, £400 RWS-729 and a new £450 Partington X Stand which is the sonically preferred choice of UK distributor HiAudio.

### SOUND QUALITY

The Monitor Audio RS8s have particularly distinctive high frequency abilities, something I've found common to their earlier models, as far back as the R852/MD standmounts from the late eighties, for instance (see HFVW January 2005,

p19). This is surely down to their use of metal dome tweeters and impressively, unlike the usual typecasting of such devices, I did not find the sound harsh or brittle. Rather, the RS8s are expansive and low in coloration. They are also excellent at midrange detail retrieval, able to reveal the subtleties of intricately played percussive and stringed instruments superbly. They also handled dynamic orchestral crescendos and powerful low frequencies with ease. The opening 'Fanfare' on the Janáček 'Sinfonietta, Taras Bulba, etc.' contains a sublime horn section that should pan across the listening room with finesse, precision phrasing and an expansive spatiality, and the RS8s were excellent in the rendering of this demanding horn-led piece.

The masterful cover of the Nine Inch Nails song 'Hurt' by Johnny Cash revealed a crisp, clear and highly communicative piece of music. The RS8s impressively reproduced vocals without a chesty, muffled quality. Instead the phrasing of the vocals and instruments arrived outstandingly while remaining convincingly musical.

The RS8s reproduced 'Down By The Seaside' from 'Physical Graffiti' by Led Zeppelin with fine instrumental separation, but not clinically so, as they sounded entirely at ease with the demands of the song as it went from gentle lament to the more traditional Zeppelin bombast. Consequently, power and depth emanated deep out of the mix with convincing reproduction of low frequencies for the drum and bass guitar.

The RS8s reproduced the music from 'Rosanna' from the Toto SACD with a deft touch, revealing a lush yet open recording quality, with a wonderful combination of musical cohesiveness with excellent instrumental and vocal separation.

Janáček's 'Fanfare' demonstrated the Usher Audio X-718s to be rhythmically more free flowing, but less well separated in the higher frequencies compared to the Monitor Audio RS8s. Here the horns on the 'Fanfare' sounded fuller-bodied and more effortless, meaning that on this piece at least the Ushers embodied

MIT and the University of Massachusetts, and is also said to be the progenitor of MTM (a tweeter in between two mid/ mid-bass drive-units), otherwise known as the D'Appolito configuration.

The X-718s exploit a slanted front baffle with what looks like four gold coloured fixing covers to each solid-birch side-panel and, impressively, these all



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better timbral acuity, specifically with the horns, while the phrasing of the instruments was slightly superior too. However, the lesser sized enclosure also limited the scale, power and reach of the music when compared to the bigger boxed Monitor Audios. This was their downside – they sounded dynamically compressed and smaller in scale. I preferred the Ushers between 600-800mm from the rear concrete wall. They were tonally smoother than the MAs when called upon to reveal the crescendos within the Janáček music, but seemed more diffuse too and less controlled.

'Hurt' by Johnny Cash propelled itself from the Ushers nicely, with a richer tonality compared to the Monitor Audios, exemplified in the vocal region. In terms of dynamics and scale, where I expected the smaller Ushers to be commensurately less able than the larger MAs, both loudspeakers proved highly accomplished with this recording, which surprised me. Therefore with its slightly faster sequential tempos, more three-dimensional vocals and atmospheric qualities, the Usher proved superior specifically with 'Hurt'.

However, this wasn't the way with everything I tried. Whilst the Monitor Audios turned in a typically big, punchy, crisp and expansive sound on everything they played, the Ushers were far more music dependent. The vast scale of 'Down By The Seaside' by Led Zeppelin had the Ushers shirking slightly, unable to convey sufficient weight for this grandiloquent rock music. Lead guitar melodies and vocals also revealed ringing distortions as the Ushers rendered high frequency peaks. The Ushers reproduced a clearer version of 'Rosanna' by Toto in comparison to the Monitor Audios by procuring a more expressive and animated musical quality. However, they were not as effortless as the Monitor Audios considering the Toto recording and consequently came across a little strained during the high-frequency guitar solo. That's their problem – within their 'envelope' they are excellent, but they are pushed outside of it too easily when powerful, large scale music is played.

**CONCLUSION**

The Usher X-718s are beautifully designed and built.

They remained more successful with the Janáček and Johnny Cash recordings, especially with 'Hurt' by Cash where they matched the bigger boxed Monitor Audios bettering them for tempo with faster instrumental/vocal phrasing and rhythms. However, the Led Zeppelin and Toto recordings didn't do so well because the Ushers sounded discernibly strained on guitar solos and vocals. So while very good, they are somewhat fussy with the type of music used. The Monitor Audio RS8s have outstanding instrumental

separation, excellent phrasing and also a powerful dynamic ability. As such, they remained unflustered throughout with any of the music used and while not quite as good in tempo as the Ushers, they accommodate a wider variety of music. So for this reason, my choice would be for the Monitor Audio RS8s.

**MUSIC:**  
 Janáček/Serebrier/Czech State Philharmonic, 'Brno, 'Sinfonietta, Taras Bulba, etc.' (1995/1996/2001)  
 Johnny Cash, 'American IV: The Man Comes Around' (2003)  
 Led Zeppelin, 'Physical Graffiti' (1975)  
 Toto, 'IV' SACD (1982/2003)

**MEASURED PERFORMANCE**

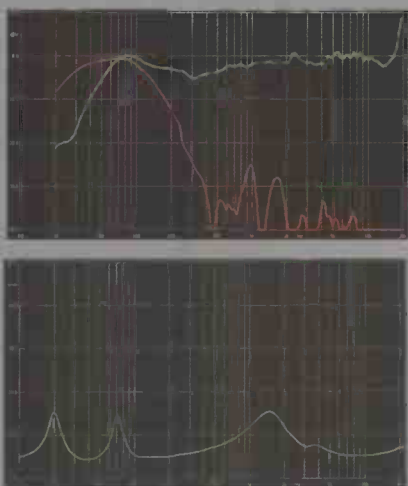
**MONITOR AUDIO RS8**

The twin bass units of the Monitor Audio RS8 peak strongly, by around 3dB at 70-80Hz so the RS8 is not going to lack bass. What its quality will be like can only be judged by listening. In contrast the lower midband is recessed, but above 1kHz output rises to make the upper midband and treble regions more obvious.

Above 14kHz the tweeter peaks sharply by no less than +12dB at 20kHz - an extraordinary amount but one that will increase treble detail, provided the tweeter is well controlled enough not to break up and become harsh. Sensitivity was high at 89dB, so they do not need a lot of power.

The RS8 is going to sound bright and quite bass heavy, not an especially subtle combination. Since such behaviour is easily enough

controlled nowadays, its existence in the RS8 is not likely to be accidental. The 'speaker is tuned to sound detailed and fast, with a heavy low end-punch. NK



**MEASURED PERFORMANCE**

**USHER X-718**

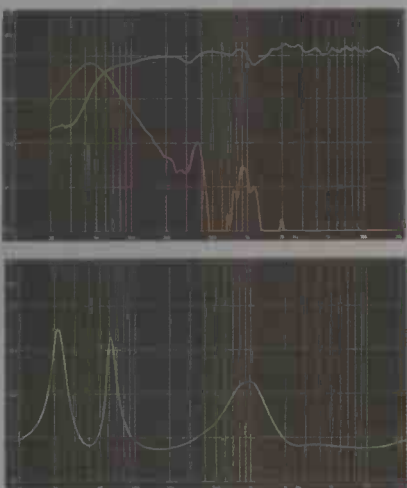
The Usher X-718s exhibit a generally flat frequency response across their full bandwidth. The tweeter in particular has a very even output with no unpleasant dips or peaks, which should give good smooth treble.

Measured bass response starts to drift gently downwards below 150Hz, before finally falling off around 60Hz but is reinforced below this by the port, which is tuned to 40Hz. The X-718s are not ultimate bass machines and will most likely benefit from placement reasonably close to a wall.

There are a couple of undulations in the midband, namely a dip at just over 1kHz and a rise at 2-3kHz, which interestingly correlates with Usher's quoted crossover frequency of 2.05kHz. This is likely to give an element of forwardness to the midrange.

Unusually these days, the X-718s really are an 8 ohm

loudspeaker, with a measured DCR of 6.8 ohms, and the benign impedance curve, along with the measured sensitivity of 85.5dB means that they will work well with a good range of amplifiers, but need 60W or more. AS



**VERDICT** ●●●●£

Crisp, clean, expansive and atmospheric sound that's detailed and dynamic.

**MONITOR AUDIO RS8** £800  
**MONITOR AUDIO LTD.**  
 ☎ +44 (0) 1268 740 580  
[www.monitoraudio.co.uk](http://www.monitoraudio.co.uk)

**FOR**

- powerful, articulate bass
- superb high frequencies
- build quality

**AGAINST**

- long running-in period

**VERDICT** ●●●●

Generally very clean and detailed with fine rhythmic abilities, but lack scale and dynamic articulation.

**USHER AUDIO**  
**COMPASS X-718** £740  
**Usher Audio**  
 ☎ +44 (0)8450 525 259  
[www.hiaudio.co.uk](http://www.hiaudio.co.uk)

**FOR**

- styling
- build
- rhythmically excellent

**AGAINST**

- limited dynamics
- music dependent

// the singularly most addicting  
piece of gear I have ever heard"

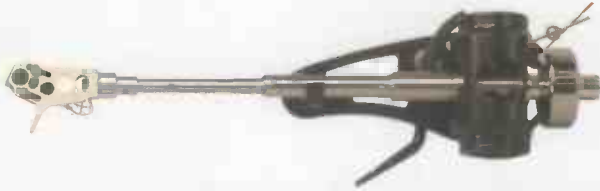
10 AUDIO REVIEW

"A new benchmark for musical communication" STEREO TIMES

"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 

"The best tonearm I've heard" HI FI WORLD



Your cartridge can deliver vastly improved results if coupled with a high grade arm. Great tonearms of the past were recognised for what they contributed but we would suggest it's time to upgrade. Massive performance improvements are now possible, so why not advance your system to a new level? After all, a significant tonearm upgrade offers many times the improvements of those given by cartridge upgrades, and last a lot longer. Our multi-award winning arms are offered with a no risk, money back guarantee should you be anything other than delighted.

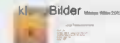
#### Tonearm Models

Enterprise  
Conqueror  
Illustrious  
Encounter  
Silver  
OL1

 2005 World Awards



Closest to the original sound



## Ultimate performance

"The best musical results of any turntable I've ever heard, regardless of price."

Since I've been listening to turntables professionally for 32 years and am aware of the pitfalls of ultimate proclamations, I hesitate somewhat to make this statement. Nevertheless, it is true. The level of musical communication available from the Illustrious/Aurora Gold is in a class by itself. It sets a new reference."

STEREO TIMES on the Aurora gold turntable & illustrious tonearm

ORIGIN LIVE  
Tel/Fax: +44 02380 578877  
E-mail: info@originlive.com

Full information on web site

www.originlive.com

"These speakers are so good they are difficult to write about."

Sollie Reynolds July 2006  
Absolute Sound

"Right now, it is not out of the question to suggest with full credulity that Acoustic Zen's ADAGIO speaker is the most under-priced high-end audio value I can name."

Jim Merod  
Enjoy The Music

"Such is the acoustical and aesthetic splendor of Acoustic Zen audio designer Robert Lee's finest achievement - a loudspeaker design for the rest of us. His Acoustic Zen Adagios, by any measuring stick you care to reference, rank among the finest price/performance offerings in contemporary high end audio. Period."

Chip Stern  
6 moons August 2006

## Angelsound Audio

Acoustic Zen is distributed in the UK by Angelsound Audio. Dealer enquiries very welcome.

Tel: 01923 352 479  
info@angelsoundaudio.co.uk  
www.angelsoundaudio.co.uk



**SPECIAL OFFER**  
To celebrate the launch of the Acoustic Zen Brand in the UK, Angelsound Audio has introduced a special offer with its Dealers - but for a limited time only.

You can buy the stunning Adagio Model (shown left) for the introductory price of **£3495** (Normally **£3950**).

For more information please contact one of the specialist Acoustic Zen Dealers today.

Hurry! Offer won't last long...

#### Acoustic Zen Dealers

Orpheus Audio  
www.orpheusaudio.co.uk  
Tel: Keith on 0161 4281539

Audio Atmosphere  
www.audiotoomosphere.com  
Tel: Stuart on 01785 711232

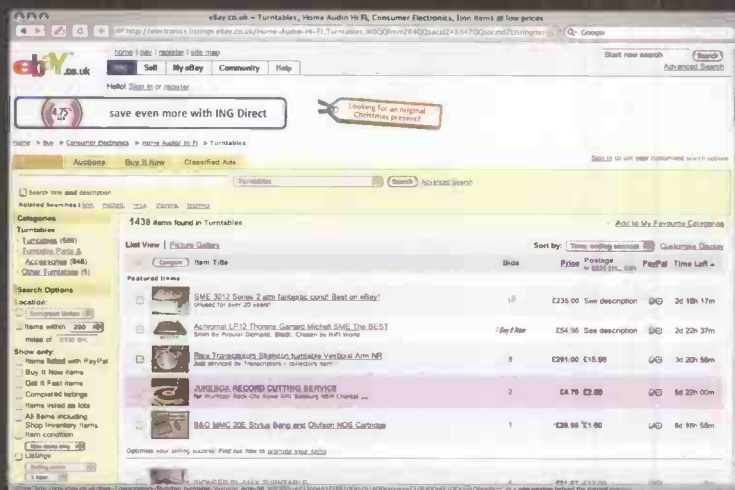
Heatherdale Audio  
www.hifi-stereo.com  
Tel: Dove on 01903 872288

ACOUSTIC ZEN



# Going, Going, Gone!

The rise of internet auction sites like eBay has transformed the way we buy and sell used hi-fi. Battle-hardened classic collector David Price has sage advice for those wishing to buy and sell online...



In the old days, used hi-fi would be sold in one of four ways. The obvious place to find a good bit of secondhand kit was at a hi-fi dealer, who would be selling on customer part-exchanges at a small, nominal profit, really just to cover handling charges and get the stuff out of the shop, to make space for the (far more profitable) new stuff. Good bargains could be had, certainly reasonable ones, but there was never the sense of encountering dramatically under-priced stuff. It was usually decent kit at a reasonable price. Dealers across the country stuck to this policy, meaning the quality secondhand market was pretty consistent, and sensible.

Then there was the hi-fi junk shop, or more often, the junk shop selling hi-fi. Here you could find bargains, and some pretty amazing ones. Trouble was, it was unlikely that the seller would know the history (or age) or the kit, and even less likely that it would be warranted. If you bought, say, a 1993 Marantz CD72 from a dealer's secondhand section for £200, he'd more than likely know its ownership from new (probably because he sold it new, to one person, who then brought it in for part exchange later). The proper dealer would have at least a vague idea about the number of hours it had been used (and thus the amount of life left in it), and very

likely warrant it. The junk shop seller would come back with a, "dunno mate, but it's yours for a ton". You paid your money and took your choice...

Then there was the private sale. How would you find the seller? Well, most likely you'd buy from the classifieds in a hi-fi magazine such as this. Being a reader of the magazine, you'd know the worth of the kit for sale, as would the seller. You might haggle over the odd scratch or dink, but basically you could get good, low ownership (or most likely one owner) boxed kit for a keen price. You'd have to drive over to the seller's house, get the measure of the kit for yourself, pay cash and drive it back, but there would be little room for disagreement.

The fourth way was the local free ads paper – this was a riskier, but potentially more lucrative alternative to option three (buying from the classifieds of a hi-fi mag). Most stuff in your local rag is, lets face it, rubbish. If there is a 'hi-fi' section, it's mainly twenty year old Amstrad Stack Systems and the odd nineties plastic-fantastic Akai microsystem. Occasionally though, you'd hit gold. Basically, if the seller didn't realise what he had (usually because it was given to him/her, or he/she inherited it), you were quids in. Plug it in, check it works, pay the asking price and leave quickly! Yours truly has had a number of such moments over the years...

## INTO THE NET

Internet auction sites such as eBay have changed all this - irrevocably and forever. Now there's another option. Type the model number of the product you want into a search engine, and then go off in pursuit of it. At first, it seems amazing. Bidding is easy, there's a massive choice, lots of lovely pictures if you're not sure that what's for sale is exactly the model you want, and even a well structured 'postage and packaging' section, specifying the cost of delivery. (If the seller is in London and you're in Scotland, getting it to your door for £19.99 really swings a deal, as it's a lot cheaper than the petrol). A nicely lit set of pics on a clean background can make anything look good, and a low reserve doesn't half make you think you want something that you hadn't otherwise imagined. But it's not quite that simple, as you will find out.

As I've said, the basic idea is brilliant, but there are a lot of 'dark areas' where people don't quite follow the rules. I know this out of bitter experience, having transacted hundreds of sales, many of which have been bought for the express purpose of this magazine's 'olde worldie' section. Most have gone though without so much as a blip, but there have been some very dark moments too, when I have acted in good faith and been stung badly. Most online auction subscribers

are decent enough folk, but it only takes one not to act correctly and the system becomes far less effective at getting the right buyer in touch with the right seller. That's where this guide comes in...

## BUYING

There are pitfalls for both buying and selling on eBay. Experienced eBayers have learned through trial and error what and what not to do (and expect), but let's assume you're a relative newcomer, with all your previous used hi-fi buying been via ye olde magazine classified ads and junk shops. Here's what you've got to look out for:

First, let's assume, for example, that you're a buyer who's set his sights on that lovely Linn LP12 currently online at £98 with two days to go in the auction. First, make an opening bid – say a notional £100. Why not bid the full amount you're prepared to pay? Well, any seasoned eBayer will tell you that you're a fool to do this, because you might get away with paying much less, so most just file an opening bid with the intention of 'sniping' at the end. Sniping is the process of holding back your full bid amount until seconds before the auction closing time. If your rival bidder responds to your every bid, days before the end, he may bid you right up to your maximum amount, so most prefer to wait literally ten seconds before the auction ends and then enter the full amount, a high number, and hope the rival bidder(s) won't be able to respond in time. This is, for many, the golden rule of eBay – but it doesn't always work...

What happens if your internet connection drops out, or eBay momentarily freezes due to massive traffic, or you simply just miss the moment? It happens, and as a seller I have the emails from failed 'snipers' asking me if there's any way I could sell my kit to them instead (for £50 more, of course) because they weren't able to bid in time. Well, the answer was no for me, because the winning bid is a legally binding

contract between the seller and the winning bidder (providing it reaches reserve). However, less scrupulous types can find bogus reasons for not going ahead with the sale (so they can sell it to someone else offering

more). For example, they may come up with a sob story about it being faulty, to the winning bidder. This is of course, illegal (you're breaking a legally enforceable contract), but people still do it. My point is – between seeing your dream bit of classic kit and getting it into your listening room, there is a lot that can (and does) go wrong. With online auctions, don't get your hopes too high.

Worse still, there is no guarantee you'll have the chance to win the auction in the first place. While the auction's running, you can bet that even if there are only a few bids, there will be ten times as many people watching it. Most of those 'watchers' will be there simply to see how much it goes for, to give themselves an instant valuation on their LP12, or on one they want to buy elsewhere, or at another time. However, some of these watchers will be very seriously interested, and one or two will have already emailed the seller something to the effect of, "Hi – would you take £300 for it?". This isn't illegal at all, although arguably it goes against the spirit of the auction. Many sellers insist that they won't take offers from such speculators, but there are others who will say words to the effect that, "this item is on sale elsewhere – the seller reserves the right to end the auction at anytime". Some seasoned eBayers take this as code for "don't bid, just make me an offer by email".

All this means that an auction can actually become quite a surreal thing, almost like a mirage, with the seller hoping to close the auction early if he meets anyone keen enough to make him a big offer. Even if there's no sign of this, the seller may have agreed to close it, and will be ending the auction as soon as the guy's cheque arrives in the post, tomorrow morning. To all intents and purposes, this is a 'ghost auction' – just an illusion – and you'll be wasting time and effort bidding. This doesn't happen often, but it can, and you just never know. Sellers can be ruthless – if they get what they want a few

days early, they'll end the auction early, and why not?

The other big loophole on auction sites is the bidding process itself. There's absolutely nothing that sites can do to stop the seller's friends and family bidding on an item with absolutely no intention of buying it – to artificially inflate the price. Some seasoned sellers think they can get more money if they create a 'vibe'. They'll talk up the item in the description, which is fair enough, get their friends or family to ask questions, which they'll display on their listing (another chance to show how popular the item is), and get their mates down the pub to pile on low bids to make it seem really in demand. The hope is that the serious buyers will feel they have to bid higher to get it. I have heard many anecdotal stories about this, and it's why many online auction sellers get banned from the site. Of course, it can backfire, with their sister winning their prized CD player – in which case you can bet it will be relisted quickly!

All of these pitfalls come after the biggest, most fundamental problem with online auctions of all – you're relying on someone else's description of their own item. In the old days, you'd drive over to someone's house, and could make an instant appraisal of its true condition and worth. Now, you effectively have to take the seller's word for it. In the old days, if you bought from a dealer, he wouldn't try to hoodwink you, because he had his reputation to think of. Now though, despite the feedback [see AUCTION SPEAK], sellers are far less worried. If you don't like it, they'll just find another bidder, and you can 'eff off'...

One way in to deciphering listings is the quality of the seller's spelling and grammar, which is a good general guide to the provenance of the item. If it's a dyslexic drawl, it is more likely the seller is a 'barrow boy', flogging any old stuff off. Online auctions are particularly well populated by these sort of 'traders', and they don't have any idea how to correctly pack sensitive hi-fi equipment for shipping. Combine this with a look at his feedback, and the items he's sold, to get an idea of whether this is a genuine private seller, or it's just being unloaded by 'a bloke down the pub who's got a computer'. From here, you can then email the seller, and ask him specific questions about the condition. The trouble is, if he describes his classic Aiwa cassette deck as "working beautifully", that is *not* an explicit guarantee that it isn't down -5dB at 10kHz due to worn out heads. The seller could reasonably say it sounds "fine" to him, and suddenly you're in conflict when your lovely new (old) tape deck arrives. All this would never have happened in the past,

"things can get fraught with cynical sellers or aggressive bargain hunting bidders..."

contract between the seller and the winning bidder (providing it reaches reserve). However, less scrupulous types can find bogus reasons for not going ahead with the sale (so they can sell it to someone else offering

days early, they'll end the auction early, and why not?

The other big loophole on auction sites is the bidding process itself. There's absolutely nothing that sites can do to stop the seller's

when you'd drive over and audition the item yourself first hand. This is another example of how online auctions don't deliver what you'd hope. In the case of our fictional LP12, a worn or scored main bearing will wreck its sound, but there's no way you can really and truly assess this as a buyer, without viewing the item in the flesh. For this reason, ask as many detailed questions as you reasonably can.

Finally, if that wasn't bad enough for our poor fictional Linn buyer, there are scam auctions. Some five years ago, back when I was running a PC with shaky virus protection, imagine my surprise when I logged on to eBay one evening to find I was selling a 42" Sony plasma TV, with 35 bids on it at nearly £2,500! It was being done under my account name (which at the time had some 240 transactions and 100% positive feedback), and I couldn't stop it. I informed eBay and the company responded brilliantly – within hours 'my' auction was taken down, and I got a new username and password. Spyware on my PC had obviously found out my eBay details, and the gentlemen behind it, based in Spain I later found out, had used it to sell fictional high end TVs. eBay is very good at stopping scams, but there's always the risk, and phoning the seller is always a great way to satisfy yourself it is legit. First, it is important that the seller is happy to give his contact details (he should be, if he's going to take your money) and second, you'll soon find out if he knows the product...

Even if you win our notional LP12, and the seller doesn't back out of the sale, and you go ahead with sending payment, there is still no guarantee that you are going to get the goods, because we're now into the wonderful world of couriers. Almost everyone on eBay uses them now, but they are not a universal panacea. I have used a number of companies, and some are just plain inadequate. With one company, almost half the hi-fi I sent with them arrived smashed, despite meticulous packaging. With another, some went missing (i.e. stolen). The only way around this is for sellers to double box everything. For example, our fictional LP12 should be put in its factory standard packaging, and then into an even bigger box, with bubble wrap acting as an additional shock-absorbing layer. This prevents most forms of damage, and has the other benefit of not alerting unscrupulous types in the courier's warehouse that it would be a very nice thing to have in their own homes... In truth,

the most stealable products seem to be DVD players, but any electronics may lead certain courier company employees into temptation. If the item is in a plain box, its original box with make and model number – not to mention phrases like "premium British hi-fi" or suchlike – unseen, it has the best chance of not getting 'lost' en route to its new owner. If the seller can't double box his item, ask him to at least put it in a black bin liner secured by parcel tape, so the make and model number are invisible to prying eyes.

When the doorbell rings, and your prized new old LP12 arrives, don't just sign for the package and say "thanks mate" to the delivery man. Inspect the box for any signs of it being bashed, crushed, thrown or damaged in any other way. Shake it, gently, to see if it rattles. Finally, unless you are sure that all is perfect, sign for it as "received but not inspected". Why? The small print on some couriers' insurance policies says that if you've signed for it, you've signed for it as 'received in satisfactory condition'. This is precisely what they'll use to tell you that they're not going to pay out for any damage they've caused. Even though it's smashed to pieces inside the box, you signed for it as being received in satisfactory condition, so how can you then make it claim? If you write 'not inspected' on the docket, at least you're not admitting it was received in good condition, and may have a case...

## SELLING

Play it as straight as you possibly can. List the item with a comprehensive description of its history, ownership and history. Be scrupulously honest here – rest assured that the only man in the world who would think a one inch scratch on the back panel is a disaster for humankind, is the one who will win your item. It's Murphy's Law – what can go wrong will go wrong – and it's best to legislate for it as best you can at this stage. Don't bore the world with your opinion on the greatness of the item, as there will be some smart Alec who emails you asking, "if it's so good, why are you selling it then?" If it's been reviewed favourably in a magazine, by all means say so, but get your facts right. For example, I have not, nor have I ever, said a Technics SL7 is the best turntable in the world, but one eBay seller recently thought so! In short, keep your listing crisp, detailed and businesslike. If you can't spell or write grammatical English, find



**eBay is brilliant for specialist kit such as this classic Quad system - this one's a goodie, but not all are...**

someone who can help you, as it might instil confidence in bidders.

Photographs are critical. Two identical items, one without a photo and the other with, will reach different closing amounts, and you can bet the latter will be higher. Likewise, a listing with six large high resolution, in focus, well-lit photographs will close far higher than one with a smudge from a mobile phone masquerading as a photograph. You can never waste time doing good pictures, although if it's a £10 Sanyo cassette deck you're selling you might like to invest just a little less pre-auction preparation than if it's a £1,000 Nakamichi Dragon, obviously. Although it costs more, the extra interest garnered by a nice set of photos should repay the extra listing expense ten or even fifty fold.

At this stage, you have to decide on a price. This is another art in itself. In one sense, the lower you list your fictional LP12, the more bids you will get. Start the auction at £1 for a Sondek worth £400, and you'll have loads of bids from the word go, but do not expect these to materialise into a higher selling price in the end. All it will do is entail extra work on your part. There are a lot of confused people out there in online auction land, who really do think that because your LP12 is currently £3.20 with three days to go means they are going to get it for £30 or less. List it low, and you'll be getting "hi mate, would you take £20 for it?" type emails all week. Some of these will be chancers, others idiots, others genuinely deluded souls. If you email back saying you'd accept £320 for it, then don't be surprised if you get a sob story about how they'd love to own it, and they already think of it as theirs, but they can't afford it because of unemployment, bereavement, bad luck, etc., so you really must sell it to them for £20. My point is that it's a weird, weird world out there, and



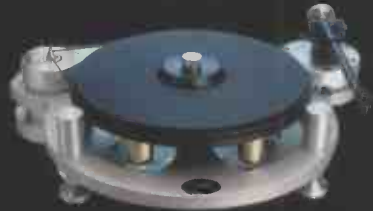
BRITISH DESIGN AND ENGINEERING AT ITS BEST

After 35 years, Michell is still a family run business with a team of dedicated and proud craftsmen, producing quality turntables and accessories



Orbe SE

The Michell flagship for music lovers who are not prepared to compromise



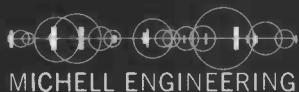
Gyro SE

The classic Michell turntable, refined over many years of development to its current level of performance.



TecnoDec

Entry level turntable incorporating features from the classic Gyro



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Telephone: 020-8953 0771  
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michell-engineering.co.uk

After you, the listener, the room is the most important factor in your enjoyment of your system. Have you taken care?

## Room

### for improvement

When you play music you "excite" the room. In fact, think of your listening room as the **LOUDSPEAKER BOX WITH YOU INSIDE**, drive units facing inwards – that's how significant the room is.

Try to choose a room with uneven ratios, eg. not 6 x 4, to minimise **STANDING WAVES** – big subject, but imagine ripples (just like sound) bouncing back in a bowl of water.

Ideally place speakers far away from walls to minimise interaction. That's usually difficult, **SO EXPERIMENT** – remove spikes and slide the stands /boxes until you have good imaging. It can take weeks but it's FREE!

Large speakers with deep bass will be difficult. Big subject. We prefer well-integrated sub-woofers, ideally placed, to **CONTROL THE ROOM**.

Hard surfaces – glass, bare floors, smooth walls, low ceilings – will emphasise treble. Absorb with soft material? Well no, diffusion is better. Use bookshelves, rough and convex surfaces to keep treble and detail.

Equipment in a convenient corner? By the chimney breast? **No!** Play some bassy music and put your ears in there. Deafening? Think of the acoustic feedback, and also think of **EQUIPMENT SUPPORTS**. Critical.

We've only touched on system set-up. It's crucial and **WE TAKE CARE** so you hear your system at its best.

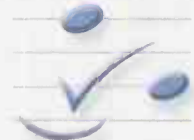
Customers say we make some of the **BEST SOUNDS** in our studio they have ever heard, so you know we can do the same in your home. Our advice will take account of your best components and guide you where change is needed, in stages you can afford. You **AVOID EXPENSIVE MISTAKES**, enjoy music along the way and save money in the long run.

#### JUST LISTEN AND YOU'LL KNOW

**CD:** ACCUSTIC ARTS, BEL CANTO, dCS (ELGAR, DELIUS, PURCELL, VERDI, VERONA, P81), MBL, STELLO, WADIA. **VINYL:** AVID, CLEARAUDIO, DNM, GRAHAM, THE GROOVE, LEHMANN, MICHELL, ORIGIN LIVE, SUMIKO BLUE POINT SPECIAL, TRANSGURATION. **AMPLIFIERS:** BEL CANTO, CAT, DK DESIGN, DNM, GAMUT, HOVLAND, MBL, SONNETER, STELLO. **LOUDSPEAKERS:** AUDIO PHYSIC, DALI, ETHOS, MBL, NEAT, TOTEM. **CABLES:** ARGENTO, CHORD Co., DNM, NORDOST, VERTEX AQ ETC. **MAINS** Vertex AQ. **SUPPORTS:** ARCICI, STANDS UNIQUE, VERTEX AQ

The Right Note

Music in the home



BATH

01225 874728  
or lo-call

0845 230 7570

eBay is no exception. If you list it too low, you'll attract these types like it's a full moon every day.

Conversely, list too high and you're cruising for no bids. If you want £400 for your Linn, you could put the start price at £395 and hope someone bids, and they might. But don't count your chickens... In truth, you need a lowish start, plus a reserve. I usually plump for one fifth to one tenth of what the item is worth (to get a decent number of bids), and a reserve of about four fifths of what I think it's worth. On eBay, placing a reserve on an item incurs a fee (see the website for exactly how much, as it varies), but is still saves you a lot of trouble in the end. To wit, for our fictional £400 Linn, I'd start it at £50 with a £350 reserve. This way, you'll get healthy bidding, few weirdos and a good auction.

It's always good to answer questions as best as possible, and post them up on the listings. Remain courteous and concise, and don't get too annoyed when you get stupid questions – this is part of life. The number of times I have advertised items as being in 'mint, unmarked' condition, only to get questions saying, "hi mate, are there any marks on it", I dare not think. Don't under-describe your item; remember that a great many sellers over-describe theirs. An LP12 with a couple of small, light marks on the plinth could be described as being in "excellent, used condition", as many sellers will use the word "mint" or "immaculate" for items in far poorer condition... But by the same token don't over-hype it either – there will be tears at the end of the auction!

The worst nightmare for sellers is timewasters. There is a small but sizeable number of eBayers who fall in love with your item at 11.53pm, having just got home from the pub in a decidedly 'tired and emotional' state. They put a high bid in, win the item, and realise the next morning they have no way to pay for it. If you're really lucky, you'll get a "the dog ate my homework"-type excuse, but most just never make contact, or answer your emails. There's little you can do about this, short of asking bidders to email you at the same time they bid, with their full email and home address, and home phone number. This is seldom of any use in practice, but is a reality check for some more deluded types who think they really are – for a second at least – the next owner of your prized possession. This is especially useful for bidders with only a small number of feedbacks – if all they've

ever bought on eBay to date is a couple of printer cartridges and a paperweight, then you are not best placed to assess their suitability for your specialist hi-fi separate. If they send you a simple email saying, "hello, can I bid please?", this is a declaration of intent of their part, and often a reliable one. This is why you will see more seasoned eBayers saying "will bidders with under five feedbacks please email me first before bidding?".

Finally, now you've got your listing off just sit back and relax. You just never know. Your winning bidder may be outside your house the morning after the auction end with cash and a smile, or may disappear into cyberspace, never to be seen again. Mostly, it's somewhere between these two extremes. Just be as straight and as conscientious as you can, don't get emotional or take offence (at the stupid, insulting offers you're bound to get), and try and cover your back.

## SOLD!

When sold, Paypal is a very convenient way to move money, but remember it can take a surprisingly hefty amount of the closing price in some cases. Cheques, or cash in a registered letter for very small items, are the only other realistic ways of payment around. Most people on eBay – and any other online auction (and life itself for that matter) – are good, nice, decent trustworthy folk, but just when you start to take this for granted, you learn otherwise. On the surface, online auctions are a wonderfully simple way to locate rare, esoteric or just plain weird stuff, but delve deeper and things can get so complex that you start to dream of spotting a classified ad in a mag, phoning the guy up and driving over to see it with cash.

In my opinion, eBay is best with items that you either can't sell anywhere else (i.e. cheap tat) or things you wouldn't want to sell anywhere else (i.e. super rare, premium priced, specialist stuff). Inbetween, where normal people are selling normal stuff, things can get more fraught with cynical sellers or aggressive bargain hunting bidders. Hopefully now, forewarned means forearmed.

## AUCTION SPEAK:

**FEEDBACK** – eBay's system for rating the honesty of buyers and sellers alike

**LISTING** – the item for sale online

**PAYPAL** – an eBay sanctioned service for transferring money electronically


**RESERVE** – the minimal amount you will accept to complete the sale

**START PRICE** – the amount the auction starts at (often much lower than the reserve)


**SNIPING** – the practice of bidding on the item at the very last minute, to beat other bidders by surprise

## HALL OF SHAME

DP's top ten classic hi-fi clangers, and how much he lost...

[1] **TECHNICS SP15 TURNTABLE**   
Bought £250, speed control fault (unfixable), sold for spares.



[2] **YAMAHA TC-800GL CASSETTE DECK**   
Bought £150, motor failed (irreplaceable), cannibalised for parts.



[3] **INCA TECH CLAYMORE AMPLIFIER**   
Bought for £150, cracked PCB, sold as spares or repair.




[4] **PIONEER CTF-950 CASSETTE DECK**   
Bought for £90, transport logic controller chip failed (no longer available), scrapped.




[5] **SONY CDP-101 CD PLAYER**   
Bought for £80, drawer controller IC failed (no longer available), scrapped.



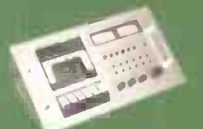
[6] **SANSUI TU-717 TUNER**   
Bought for £80, RF front end fault, awaiting repair...




[7] **MARANTZ CD54 CD PLAYER**   
Bought for £70, damaged in transit, seller didn't pack properly, scrapped.



[8] **NAKAMICHI 600 CASSETTE DECK**   
Bought for £49, tape head worn (no longer available), scrapped.



[9] **TECHNICS SL-10 TURNTABLE**   
Bought for £40, linear tracking arm stuck, cannibalised for parts.



[10] **PHILIPS BLACK TULIP SYSTEM**   
Bought for £120, lost interest, sold but broke even minus postage.



# Universal Pict



**N**ow Arcam have joined the play-everything fray, is it time to pension off your old DVD-A or SACD players and go for a universal such as this?

The announcement of the DVI37 earlier this year (along with the HDMI-switching AVR350 receiver we reviewed a few months ago) was notable for several things. Firstly, the price for what was expected to be a top-flight universal player was very competitive at £1,250. Secondly it was with much relief to many of us that Arcam had at last joined the SACD crew. Finally they were among the very first to offer full 1080p video upscaling onboard for standard definition DVD-Video.

All of this was possible thanks to a single piece of silicon. Arcam had collaborated with chip maker Zoran Vaddis for a long time, and felt it was time to request the addition of DSD processing to the Zoran Vaddis 888 IC at the design stage to round audio capabilities off, as well as to add the sophisticated scaling technology which permits all manner of upscaling and format conversions.

Among the other novel cunning video tricks were the inclusion of inbuilt video calibration wizards, support for Divx AVI (and other containers such as MP4) files in a top end player for the first time (many others are now leaping in), and clever

tricks like support for a 768p mode for those whose sub-1080 displays were clever enough to negotiate the non-standard (for video) computer-ish display size.

To get the video side of things out of the way quickly, this being an audiophile publication, for the purposes of the minimal video testing done a 32" Toshiba LCD TV was hooked up via HDMI and calibrated using the DVI37's in-built wizard. Despite being a 768 display, the Toshiba auto-negotiated a 720p HDMI connection which experience has shown to be better than 1080i on this display with other sources. Rugged up via the HDMI-switching AVR350 receiver using short runs of cryogenically treated, HDMI 1.2a certified cable from The Missing Link, the machine did indeed produce a stunningly rich and lustrous presentation of Spielberg's overwrought and over-CGI-ed 'War Of The Worlds', but there was no fault in the flawless image the DVI37 attained. Coupled with a gorgeously smooth surround track in DTS, the overall experience was of great film-watching, regardless of the dubious artistic merit...

Moving to audio setup, as ever with a universal player we have the joy of a nice single video connection with the pain of still needing three pairs of phonos to do DVD-Audio and SACD justice. The DVI37's partner amp, the AVR350 has no truck with using HDMI audio (other

than pass-through to a TV), but the DVI37 does permit six channels of decoded PCM to go out of the HDMI 1.1 output. This is because other processors and perhaps televisions may want to make use of the jitter-plagued HDMI audio, but for audiophile purposes (and given the halfway-house state of most HD players' next generation Dolby and DTS implementations), one suspects the bundle of six interconnects is going to be with us for some time to come.

## SOUND QUALITY

I started by auditioning David Gilmour's 'On An Island'. The lush backing vocals were done really convincingly, but Andy Newmark's ride cymbal didn't cut through in the way that it does on a high-end CD player. That said, as a CD player, while it can never match the finesse of a similarly priced CD-only or CD/SACD stereo player, you are getting so much functionality in addition with the DVI37 that it has to be worth auditioning as a universal replacement for a leading sub-£600 CD player, for example.

After that, audio testing was bound to focus on the novelty of SACD playback for an Arcam. Those of you who may have been early adopters of the DVI37 may know that the first-released versions did not support multichannel SACD due to a last minute issue in the

res



Arcam have raised their game in the DVD stakes, simultaneously delivering their first universal player alongside multiple video innovations. Patrick Cleasby looks and listens to the DV137...

888 chip's development. This was successfully remedied using dealer-supplied firmware updates, and anyone who isn't on the current 3.01 firmware level which was used for this test, should contact their dealer and ensure that they are upgraded. To display firmware level, press 'stop' and 'pause' with the disc tray in the open position.

It almost always seems to be a fact that given a piece of material in both high-resolution formats universals tend to favour DVD-Audio over SACD. This did indeed prove to be the case once again with the DV137. The obvious one always seems to be Steely Dan's 'Gaucho', and the US DVD-Audio easily beat the European SACD, which sounded glacial and uninvolved compared to the lush voices and convincing horns on the DVD version of 'Babylon Sisters'.

The first indication of just how good the CD playback of the DV137 was came from the impeccable rendition of 'Morph The Cat'. As ever you tend to think that the CD version will do until you hear the true fidelity of the 24/96 stereo MLP version (or its multi-channel version if you are so minded). As ever, a spin of Porcupine Tree's 'Deadwing' was also performed to assess surround steering capability in the mid-section, a test which the DV137 passed with flying colours.

However 'Morph The Cat' has been supplanted as the Swiss army knife of comparative audio reviewing. The simply perfect series of dual pack Depeche Mode remasters has everything. If remaster maestro Simon Heyworth did them in DSD as is his wont, surely on a level playing field the SACD stereo should sound

better than the 24/48 PCM stereo on the Disc 2 DVD-Video which will undoubtedly be a dCS down-conversion of the DSD? Well no, not in the DV137's case. In actual fact the DSD stereo sounds barely better than the CD-DA version that was also derived from it. But using the example of 'World In My Eyes' from Violator the 24bit PCM version on the DVD-V is by far the better performer.

Of course the way one should really be listening to this classic album now is in the masterful and adventurous surround mix. Once again, one would expect the DSD surround on the SACD to easily outstrip the lossy (although DTS 24/96) DVD-V surround – decoded by the AVR350 - but there was actually little perceptible difference in fidelity, which would not be the case if Mute/EMI had gone the absolute whole hog and provided us with a true DVD-A Disc 2.

While it is plain that the DV137 appears to be happier doing DVD surround and hi-res rather than DSD, this is a minor quibble, and the SACD playback is still very capable. SACD-only treasures like Roxy Music's 'Avalon' are conveyed with power and precision and a carefully balanced

tonality.

So there would now appear to be few obstacles to interested parties reaching in their pockets and shelling out £1,250 on this beauty. The only possible reasons for not doing so, if you are into surround films and music, would be the soon-to-come FMJ version, the DV139, for a modest £550 more.

### VERDICT ●●●●●

Extremely accomplished all rounder, particularly able on DVD-A.

**ARCAM DV137** £1,250

Arcam

+44 (0)1223 203203

www.arcam.co.uk

### FOR

- excellent sonic all-rounder
- impeccable video
- truly universal

### AGAINST

- early firmware issues

## MEASURED PERFORMANCE

As a CD player the DV137 displays Arcam's standard filter characteristic that imposes a slow roll down in high frequency response, our impulse analysis shows, ensuring smooth treble free from sharpness. Much the same result was achieved by DVD-Audio (192kHz sample rate), except the slow roll down started above the 34.75kHz -1dB point, reaching -5dB at 80kHz and -15dB at 100kHz. SACD rolled down smoothly too, as is common.

Distortion was minimal with CD; this is a very linear player. We measured 0.0008% at -6dB, a common high music level, and 0.007% at -30dB, a low music level. Even down at -60dB distortion was relatively low, helping the Arcam return a fine 112dB EIAJ dynamic range value. Distortion levels from 24bit DVD were also low, and better than CD, with a -60dB result of 0.12% for example. SACD gave even better results, as usual returning the lowest distortion figures.

Jitter on the digital output was negligible at less than 10ps - a great performance.

The DV137 measured well with both CD, SACD and DVD-A, likely having a clean sound free from sharpness. NK

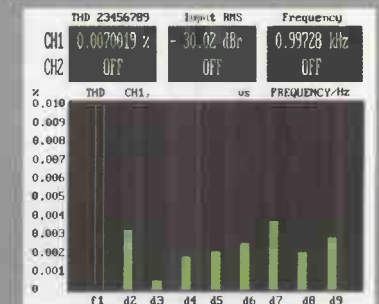
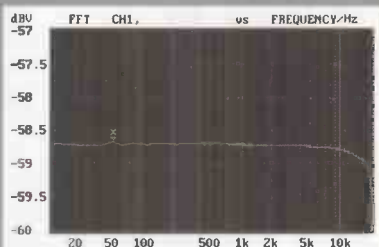
### Frequency response (-1dB)

CD	5Hz - 20kHz
SACD	2Hz - 35kHz

DVD-A 5Hz - 34.75kHz

	Distortion CD	DVD	SACD
-6dB	0.0008%	0.0008%	0.0008%
-60dB	0.22%	0.12%	0.08%
-80dB	2.8%	1.8%	1.2%
-100dB	-	4.1%	2.9%

Separation (1kHz)	122dB
Noise (IEC A)	-110dB
Dynamic range (CD)	112dB
Output	2.2V



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**OEHLBACH SILVER EXPRESS £89**

A new name in an already overcrowded UK interconnect market, Oehlbach has to offer something special to justify its existence – and with the Silver Express, it does. Described as an affordable high-end cable, it uses eight 0.12mm silver-plated oxygen-free copper (OFC) inner strands with double shielding (foil, plus a silver plated OFC mesh) for heavyweight protection against all kinds of interference. The outer diameter is 2x5.5 mm, and the cable comes with a transparent finish which shows the complex structure of the shielding. Double-shielded 24carat gold plated Oehlbach connectors complete the picture. Prices start at £69 for half a metre or £89 for a metre, and unusually, there's the option of an additional earth wire for use with turntables, or in hum-prone applications. This is called the Silver Express Plus, and costs £73 and £93 for half and one metre respectively.

*Hi-Fi World* has been a long term

advocate of silver plated copper wire, and this cable shows why. Silver wire can sound too 'silvery', if not best utilised, making for an overly silky sound with light cast on the upper mid. Copper can sound mushy and tonally grey, with a bit of zing thrown in that adds an aggressive edge. The Silver Express, like all top notch silver plated copper designs, has a truly open sound with a wide tonal palette. It's not quite as incisive as high end designs, being a little blurred and indistinct in absolute terms, but at the price it's a great working compromise, with lots of detail presented cleanly and crisply, fine soundstaging and good stage depth, and not a trace of hardness, despite its explicit midband. Bass is taut and tight, with decent (if not exceptional) extension, and the overall result is superb at the price. Even if the Oehlbach was not well presented, it would be fine value for money, but the exceptional build quality and finish (the phono plugs are superb) make it

all the more desirable. A great result.

Contact: Acoustat (UK) Ltd.  
(+44 (0)20 8863 8979).

**VITA AUDIO R1 £159.95**

The Tivoli Model One is very probably the best designed radio ever, from the point of view of ergonomics. Those who've had the pleasure of twiddling the knob of this small piece of perfection will know how much more rewarding it is to operate than your average small button festooned tuner. It was a great shame then that the Tivoli Model DAB, the Model One's Digital Radio replacement, was so poor by comparison. Excellent it might have sounded, but it was an ergonomic mess. Since then, we've had a flurry of DAB portables (portable only in the loosest sense, as most eat power like it's going out of fashion, and so need to remain tethered to the mains) that have done very little to raise the game - to make the theoretically simple task of using Digital Radio simple in practice too. Until now, because the brand new Vita R1 is surely the first properly designed table radio. It's lovely to look at, and to use, and nice to listen to as well.

You will not be familiar with the name, because it's a new brand from Ruark. British designed and Chinese built, the R1 displays very high standards across the board. Its

compact (170x130x130mm) cube-shaped case comes in a choice of real wood (Cherry or Walnut) or high gloss lacquers (Grey or Red), with pressed steel front and rear panels. On top is the RotoDial - basically a large central volume control/on-off switch, around which are the tuning controls, presets, etc. This works beautifully. The front panel sports a crisp (albeit slightly small) two line backlit LC display, plus 3.5mm headphone socket and line input (for your iPod or other audio device). On the rear panel there's a pair of gold plated phono (line level) outputs. The switch mode power supply adjusts for voltage automatically (from 100-240v AC). Sound is excellent: although superficially slightly dull it's musically insightful and pleasant to listen to over long periods.

Contact: [www.ruark.co.uk](http://www.ruark.co.uk).





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# Point of Contact

**Seeking a long term relationship with a classy pickup? Not sure if the cartridge of your dreams is moving magnet or moving coil? Noel Keywood and Adam Smith have help at hand...**

**M**oving coil cartridges give the best sound from LP, but moving magnets come close at a fraction of the price - in this test, just £100. Although I live with a £750 Ortofon Kontrapunkt b moving coil I had no difficulty enjoying music through some of the budget cartridges reviewed here; they were great fun to listen to, as well as being cheap to run.

Budget pickup cartridges are generally moving magnet (MM) types, the notable exception here being the Denon DL103, which we mischievously included to see whether there are any major gains to be had from going the moving coil (MC) route at this price. The great practical advantage of nearly all MMs is a removable stylus assembly, unlike more expensive MCs. This makes fitting the cartridge a fear-free exercise, since it can be done with the stylus removed, parked in a safe place. As fitment is a fiddly business the high chance of destroying something you haven't even used is virtually eliminated. Also, when the stylus wears out, it can be easily replaced, bringing the whole cartridge back to new.

However, we have an exception to the rule in this test in the form of the Clearaudio, as it is one of the few

MMs I have ever encountered without a user-replaceable stylus assembly. In this case, as with the Denon, the stylus must be re-tipped when worn, or the whole cartridge traded in for a new one - most dealers offer a discounted exchange scheme for this.

There are a few drawbacks to £100 MM cartridges. They don't have the see-through clarity of an MC, the sense of cohesiveness nor quite the insight. What you do get is excellent tracking, which means zero record damage, plus - nowadays - a high degree of tonal accuracy or, in more technical terms, a flat frequency response. Gone are the days when budget MMs sounded warm and bland. The cartridges I tested here provide an altogether modern presentation, as our measurements show. So expect a CD-type balance, but without that thin harsh sound CD suffers. Expect, also, tight, dynamic sounding bass, when partnered with a good arm and phono stage.

Why do modern MMs sound so good? Because of improved materials: stronger magnets, purer wire in the generator coils and stronger body materials. Stylus profiles have come a long way too; Goldring offer a Gieger I shape on their 1012GX for example and it really does mine high frequencies from the groove with great dexterity.

Whilst the cartridges here are a

bargain, the arm, turntable and phono preamp needed to exploit them will add up to a tidy extra penny or two. A Rega P3 turntable costs £300 for example and the cheapest SME arm, an M2-9, £650. Between them is the excellent Michell TecnoArm at £420. Arms and turntables spiral up in cost very quickly, but you should aim for a Rega RB250 minimum.

I have a very strong preference for valve phono stages and a Project Tube Box is one possibility. Otherwise, an external phono stage will cost around £500, unless you go for a Cambridge Audio 640P phono preamp which works very well and comes in at just £60. The internal phono stage of most integrated amplifiers isn't very serious, comprising a cheap chip and a few external parts. Use a quality external stage with these cartridges if you want to hear what we heard. An external phono stage of this kind is also a necessity with the low output, moving coil Denon.

Assistant Editor Adam Smith and I listened to all four models in both an SME M2-10 and a Michell TecnoArm mounted on Pioneer PLC-590 turntables. Phono stages were the Eastern Electric Minimax and Cambridge Azur 640P, driving a Naim Audio NAC122/NAP 150/Flat Cap 2 amplifier and Spendor S8e loudspeakers.



## CLEARAUDIO AURUM CLASSIC £115

**T**his little unit marks the first step onto the ladder of Clearaudio's MM cartridge range and offers a wood body - threaded no less - on which sits the usual metal screening can of the cartridge itself, although an all-metal version is also available at the same price. Protruding in a frightening manner is the stylus cantilever. Although it looks dangerously exposed, it is no less well physically protected than those of the others, except the Shure, but it is easier to cue accurately, a useful feature.

Fixing this cartridge is made easier by the threaded screw holes - no fiddling with nuts here. However it is definitely best not to over-tighten the screws, to avoid the potential of a woodworking job. One serious design mistake is the absence of parallel sides to facilitate good headshell alignment, as the smallest error here increases tracking distortion greatly. It was very difficult to judge alignment of the Aurum Classic, thanks to the multitude of angles present on the body.

A mass of 6gms means the Classic weighs much the same as the other contenders in this test, but tracking force is a little higher at a recommended 2gms. Clearaudio include aluminium and nylon fixing screws, a small screwdriver and, interestingly, a headshell spacer / weight, which can be used to increase arm effective mass if required.

### SOUND QUALITY

The Aurum Classic is a very big sounding cartridge and announces itself with a deep and healthy bass. Unfortunately, an immediately obvious downside to this was that the prodigious bass output was somewhat slow and ponderous and meant that bass lines seemed to be lagging behind the rest of the song on more than one occasion, particularly on faster-paced material.

Midrange detail retrieval was generally quite good, giving commendable body to vocals and the soundstage was wide, but the Aurum Classic did have a tendency to mash together the upper midrange of more complicated material, giving a slightly confused presentation. The

measured treble rolloff could be heard as a smoothing of the sound at upper frequencies and it was clear that treble performance is not up to the standard of other units in this test, as cymbals had a tendency to take on an almost cardboard quality, losing their metallic edge. We also noted, on several occasions, some slurring of sibilants which seemed at odds with the generally smooth high frequency performance noted above.

In summary, the Clearaudio is something of a mixed bag. It has a big and expansive sound with commendable midrange detail but is let down by its inconsistent upper mid and treble as well as its poor dynamic bass performance, which was bettered by all the other cartridges in the test.

### MEASURED PERFORMANCE

The Clearaudio has a gently falling frequency response above 2kHz which will impart a softness to the sound, more so at the inner grooves of an album. This is an intriguing result as it is the newest design in the test, but this behaviour most resembles the Shure, which is the oldest!

Tracking tests gave a good result, with only marginal problems at the highest-modulated cuts on the test disc and this is most likely helped by the comparatively high recommended tracking force of 2gms specified by the manufacturer.

Measured output was 5.3mV and, once again, harmonic distortion measured on vertical modulation was higher than normal due to the cartridge's vertical tracking angle of 26 degrees.

The Aurum Classic measures averagely well. AS

Tracking force	2gms
Weight	6gms
Vertical tracking angle	26degrees
Frequency response	20Hz - 19kHz
Channel separation	23dB
Tracking ability (300Hz)	
lateral	85µm
vertical	45µm
lateral (1kHz)	22cms/sec.
Distortion (45µm)	
lateral	0.9%
vertical	3.1%
Output (5cms/sec rms)	5.3mV



### VERDICT ●●●

Expansive, open-sounding cartridge but crude at frequency extremes, and its non user-replaceable stylus is also to its disadvantage.

**CLEARAUDIO**  
**AURUM CLASSIC** £115  
 Audio Reference  
 ☎ +44 (0)1252 702705  
 www.audioreference.co.uk

### FOR

- large, capacious sound
- deep bass

### AGAINST

- poor bass timing & definition
- soft, muddled treble
- stylus non-replaceable



## DENON DL103 £100

**A** familiar name, especially from the recent letters pages of *Hi-Fi World*, is the good old Denon DL103. If there was ever a cartridge to polarise opinion then this is it, but we felt it would be an interesting inclusion in this test to see whether a budget moving coil cartridge that will require a dedicated MC input or an external phono stage offers anything more than the best MMs have to offer. We used the Eastern Electric Minimax valve pre-amp when undertaking comparison against the other cartridges, and a Cambridge Audio 640P, as the latter is a nicely designed unit that measures well at a very reasonable price.

The DL103 makes use of a 16.5 micron spherical stylus on a dual layer alloy cantilever, which dangles from a rather industrial-looking plastic body with a total mass of 8.5gms. The body is quite low profile and so an arm with adjustable VTA is advisable, as we had to drop the pillar of our review SME down quite a bit compared to setting for the Goldring, Shure and Clearaudio.

Optimum tracking force is specified as 2.5gms by Denon, which is on the high side, but undoubtedly assists in secure tracking, at which the DL103 proved itself to be something of a wizard. Recommended load resistance is 100 Ohms, again quite different from the 47k required by an MM

### SOUND QUALITY

'Dynamics' and 'grunt' were the first two words that immediately sprang to mind as soon as the DL103 hit the groove - the Denon is a big and bold character! The lifts in the bass and treble that can be seen from the measured performance add real bottom end weight and crisp highs to the sound, which works superbly for faster-paced dance or rock music. Where the DL103 fell was soundstaging and depth; it does not seem to have as much as rivals. Vocals were clear, clean and located well between the speakers, but we

seemed to be hearing exactly what was going into the microphone without any of the associated ambience and scale that would be expected. The Denon felt two-dimensional in this respect.

The Denon did not disgrace itself in this company and is a bold and exciting listen, if lacking some of the insight and detail of its competitors. It is an extremely low distortion cartridge and has outstanding tracking abilities, which is a testament to its design. The blandness of its presentation is largely overcome by the tuned up DL103R priced at £190.

### MEASURED PERFORMANCE

Frequency response of the DL103 is largely flat across the entire audio range, with a degree of lift in both the bass and treble. It exhibited the best performance in this group with regards to inner versus outer groove performance, showing its spherical stylus profile is effective.

Tracking was excellent and the DL103 was, again, the only unit under consideration that successfully made it through all levels of our tracking test disc.

As the unit is a moving coil, output level is a comparatively miserly 0.7mV, but this is quite normal for an MC and will require an additional preamplification stage in addition to the normal phono input.

VTA for the Denon comes in at the 'ideal' value of 22 degrees and gave low figures for distortion on both lateral and vertical modulation.

The DL103 measures superbly in all respects and gave the best set of figures in the test. It is definitely a

design that has stood the test of time AS

Tracking force	2.5gms
Weight	8.5gms
Vertical tracking angle	22degrees
Frequency response	20Hz - 20kHz
Channel separation	27dB
Tracking ability (300Hz)	
lateral	90µm
vertical	45µm
lateral (1kHz)	25cms/sec.
Distortion (45µm)	
lateral	0.75%
vertical	1.4%
Output (5cms/sec rms)	0.7mV



### VERDICT

A dynamic and powerful performer, the DL103 has stood the test of time and represents excellent value for money

**DENON DL103 £100**

Denon UK

☎ +44 (0)1753 680568

www.denon.co.uk

### FOR

- bold and exciting sound
- outstanding tracking ability

### AGAINST

- two dimensional sound
- requires extra MC preamp



## GOLDRING 1012GX £95

**G**oldring's 1012GX is an absolutely standard design with no foibles. Body weight is on the light side thanks to its rigid Pocan body, with parallel edges for easy and accurate headshell alignment. The stylus carrier has a location peg that helps to locate it when fitting the stylus and also to keep it stabilised when in place - a nice touch.

Goldring quote an optimum tracking force of 1.75gms and a range of 1.5-2gms for the 1012GX. Good results were obtained at the recommended value and there should be no need to increase this. Lower is not a good idea, as it encourages mistracking, which can lead to increased record wear, although this one has a lot of margin.

The recommended electrical load is 47k with 200pF total in parallel, meaning you need add nothing as most arm leads impose this amount of capacitance, so no problems here either. Goldrings ride low on a disc, but this is to attain correct vertical tracking angle (VTA).

### SOUND QUALITY

The 1012GX is a spectacular sounding cartridge at the price, with immensely powerful bass that runs deep, sounds firm and delivers a real punch to the chest. Quite where the Goldring obtains its seismic bass, or its ability to layer and resolve

individual low frequency instruments and events borders on a mystery at the price - this phenomenon is right out of expectations, but gives the Goldring a sound that is an aural spectacle and this is greatly assisted by a stylus that digs detail out of the groove, but in no crude fashion. Leading edges to transients are fast and clean; vocals are crisp and clear with a pleasingly natural treble, and the sound stage comes across as

tidy, well ordered and very stable. Instruments are firmly located and panning effects vividly conveyed.

Overall the Goldring turned in a superb performance and represents excellent value, thanks to its tracking ability and sound quality. Coupled with the upgradability offered by changing the stylus to a 1022 or 1042 at a later date, the 1012 is clearly a bargain that warrants firm recommendation.

### MEASURED PERFORMANCE

The Goldring has a good, flat frequency response across the 20Hz-20kHz bandwidth with a degree of treble rise at the upper end. This will help to counteract any dullness arising from treble output naturally tailing off on the inner grooves of a record and, combined with good tracking, means it should sound lively and clean without any unpleasantness.

Tracking ability was good, with only the most heavily modulated test tracks causing any problems, however these make most cartridges struggle and the results are good for the £100 price level.

Measured output was plentiful at 7.5mV but vertical tracking angle was high at over 30 degrees. This is not uncommon with budget cartridges and also seems to be something of a Goldring family trait as a brief look through the *World* archives reminded us that the 1006 measured similarly. This accounts for the higher than expected distortion figure measured on vertical modulation due to increased second harmonic levels; luckily this will not be unduly

apparent.

The 1012GX measures well and gives the impression of a carefully designed unit.

Tracking force	1.75gms
Weight	6.3gms
Vertical tracking angle	>30degrees
Frequency response	20Hz - 20kHz
Channel separation	19.5dB
Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	22cms/sec.
Distortion (45µm)	
lateral	1%
vertical	6.3%
Output (5cms/sec rms)	7.5mV



### VERDICT ●●●●● £

Superb cartridge that shows just how good LP can sound on a relatively modest budget.

### GOLDRING 1012GX £95

Armour Home Electronics

☎ +44 (0)1279 501111

www.armourhe.co.uk

### FOR

- good tracking ability
- cohesive and punchy sound
- upgradability

### AGAINST

- nothing





## SHURE M97XE £100

**T**he M97xE comes beautifully packaged in a matt silver anodised metal case, with neat insert card pointing out it has an elliptical stylus. Also mentioned is its dynamic stabiliser brush, which serves to damp down arm/cartridge resonance (Stanton's brush does not do this). You must add 0.5gms to tracking force to compensate for it. As the M97xE's recommended tracking force is a low 1.25gms, 1.75gms is needed in total. Some believe it degrades the sound.

At 6.6gms the M97xE is light and will suit all arms, as they all accommodate 6gms minimum cartridge weight. It is easy to fix and connect up, although alignment in the headshell isn't quite as easy as the parallel-sided Goldring, for example. The securing lugs also do not feel as sturdy as those on the 1012 and their side ribs mean it is difficult to position your pliers on the nut to hold it whilst the bolt is tightened when fitting the cartridge.

Shure recommend an electrical load of 47k in parallel with 200pF-300pF, which most arm leads will introduce, but 400pF flattens frequency response, we found in tests. This cartridge has a high impedance generator with a lot of coil turns, which shows its age, as does its high compliance. Technically, it is most suited to low mass arms, like the SME M2 Series.

### SOUND QUALITY

Contrary to initial expectation, we found that Shure's M97xE did not suit the SME M2-10 arm. Listening tests showed it sounded polite, verging on warm, with little sense of high frequency detail or transient speed. Low frequencies seemed ill resolved. Swapping to the Michell TecnoArm brought forth deeper and better resolved bass dynamics with some sense of instrument separation and layering, a dynamically expanded and clarified midrange and more concise treble. From sounding polite to

somnambulant, if clean and tidy, the Shure developed some verve and pace. Its stylus isn't up to that of the Goldring, being unable to retrieve as much detail, but it is an easy and pleasant listen, lacking sharpness or spit. Vocals come across as smooth and stable, as do instruments, and the Shure has a pleasingly open soundstage.

Not quite up with the best in terms of design, the Shure is nevertheless a safe and assured-sounding cartridge that has good resolution and a decent bass performance, in the Michell TecnoArm at least.

### MEASURED PERFORMANCE

Frequency response of the M97xE has a gentle high frequency rolloff above 2kHz and this means its overall presentation will be smooth and warm and this may start to become somewhat dull on inner grooves due to the natural HF tailoff that occurs here

Tracking ability was good on the 300Hz test track but there was noticeable mistracking on the 1kHz test. Use of the stabiliser and increasing the tracking force to the maximum recommended value did not help this, and it would appear from this that Shure cartridges have now been overtaken in the tracking department - traditionally one of their strengths.

Output from the M97xE was measured at 4.2mV which is fine, and vertical tracking angle was higher than normal at 28 degrees, although this is not unusual for this price range, nor is it the highest in this test. Despite this, vertical harmonic distortion was quite good at 3.8%.

The Shure comes across as a rather old-fashioned design but it is a competent unit nevertheless. AS

Tracking force 1.25gms (1.75gms with stabiliser)

Weight 6.6gms

Vertical tracking angle 28degrees

Frequency response 20Hz - 20kHz

Channel separation 34dB

Tracking ability (300Hz)

lateral 85µm

vertical 45µm

lateral (1kHz) 18cms/sec.

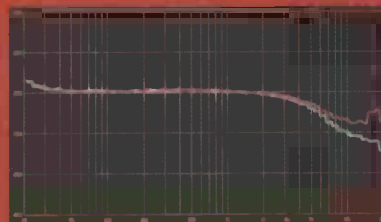
Distortion (45µm)

lateral 1.2%

vertical 3.8%

Output (5cms/sec rms) 3.4mV

### FREQUENCY RESPONSE



Red - outer grooves; White - inner grooves. Disc: JVC TRS 1007

### VERDICT

A competent cartridge which, although a rather old-fashioned design, is by no means outclassed in this company.

**SHURE M97XE £100**

Shure UK  
 ☎ +44 (0)208 808 2222  
 www.shure.co.uk

### FOR

- smooth, assured presentation  
 - never bright or fatiguing

### AGAINST

- requires careful matching  
 - poor detail retrieval

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**A**ll these units are priced at an ideal point for the owner of a good budget turntable like a Pro-ject Debut or a Rega P2, perhaps to make their first upgrade step on the vinyl ladder, in order to retrieve more from the grooves than the budget items that come with the deck. So, which one should you choose?

Sadly, it is hard to make a case for the Clearaudio Aurum Classic. Whilst it has a big and expansive sound that may help to open up a rather two-dimensional sounding system, it is far more unexciting sounding than we would expect at this price level and neither Adam nor I were unduly keen to carry on listening to it. Whilst it measures well and appears to be well constructed, its performance, combined with the non-replaceable stylus assembly, left us struggling to make a case for it. I felt it made LP sound bland, when it is not.

Moving to the middle ground, we have two quite different characters in the form of the Shure M97xE and our old friend, the Denon DL103. It is much easier to recommend both of these as, despite their different presentations, they are both

competent devices that will find fans of their particular approach to music-making. Considering the Shure first, the M97xE is a smooth, detailed and rewarding performer that never veers into harshness. It seems to require careful arm matching as it was the only one of our quartet that gave significantly better results in one arm than the other but it is an enjoyable listen, if not the last word in dynamics. Think smooth, confident yet quite atmospheric.

The Denon, on the other hand, has bags of get-up-and-go and is an exciting and lively performer that rocks and boogies with aplomb. It is also difficult to ignore its almost perfect set of measured performance figures - for a design that first saw the light of day in 1963, these are nothing short of astonishing. Where it tends to fall down is in extracting subtleties from recordings and in its lack of midrange emotion. I felt that after a while, some listeners may find it somewhat wearing and consequently preferred the Shure but, as Adam pointed out, other people may well find the Shure too laid-back and thus prefer the gutsy sound of the Denon. As we like to remind our readers as often as possible - your own ears need to

listen to both and make the decision as to which one better suits your ears and record collection!

So that leaves us with our outright winner - the Goldring 1012GX. As with its siblings, the 1006 and 1042, Goldring have shown a consistency across the range with their 1000 series, and keep improving them to ensure they remain competitive. The 1012GX takes the excitement and dynamics of the Denon, adds the resolution and smoothness of the Shure and then further rounds it off with a sense of cohesiveness that means it is equally content whether hammering out some drum 'n' bass or pouring forth the emotion and detail of a string quartet. Add to this the high quality stylus which gives consistent performance across the whole surface of an LP and which also allows upgrading to the 1042 whenever you wish, and you have an instant recipe for success - definitely a classic in the making.

So, is there any point in buying a £100 moving magnet pickup cartridge? Our answer is a definite "yes". And is the Denon DL103 comprehensively outclassed by its similarly-priced competition? Well, no, only by the best of the group, the Goldring.

# AAC in the UK

**It was an eternity coming, but it's finally happened. Digital Audio Broadcasting is finally being upgraded from its Stone Age MP2 codec to something altogether new and better. Trouble is, says Steven Green, it means there are going to be a lot of obsolete radio receivers out there – and we're not talking about the analogue ones either!**

**F**inally, at the end of October 2006, it was announced that the DAB system is being upgraded, with the AAC+ and MPEG Surround audio formats being adopted, and new error correction coding being used to make reception quality more robust. In the UK, new stations will launch using the new AAC+ format – possibly as soon as two or three years from now – and receivers that support the new standard will be on sale from next year.

Yes, that means all existing DAB receivers will eventually be obsolete, and also that countries where DAB

Audio Coding version 2, and it is the most efficient audio codec available today. For instance, the AAC+ audio codec provides the same level of audio quality at a bit rate of 64kbps (kilobits – or thousand – bits per second) as a 192kbps radio station provides employing the MP2 format of the current DAB system.

Overall, the combination of the adoption of the AAC+ audio codec and stronger error correction coding will result in the new DAB system being around four times more efficient than the current system. This translates into the ability to transmit four times as many radio stations on a multiplex, or to provide better

levels above approximately 88kbps), all of the remaining speech stations in stereo using 64kbps AAC+, provide MPEG Surround streams for all of the stations that would benefit from it, and still have a third of its multiplex left over. This would allow all of the BBC's music stations to transmit at very nearly CD-quality, all of the mono stations to transmit in stereo, and would amount to a huge improvement in the overall audio quality provided.

Furthermore, the BBC has already said that it would like to improve the audio quality of its stations on DAB, and as they only launched five new digital stations four years ago it is unlikely that they will be allowed to launch any more stations in the foreseeable future. So I find it very difficult to imagine that the BBC won't improve the audio quality of its stations once the UK has switched to using AAC/AAC+ on DAB.

Commercial radio, on the other hand, will be far more interested in using the increased efficiency of the system to launch lots of new stations, because they see this route as being a way to boost their profitability once DAB becomes mainstream. Even so, the huge increase in efficiency that the new system offers, combined with additional capacity in the form of new national, regional and local commercial multiplexes that will launch over the next couple of years, will mean that the current situation – where low bit rates have been used primarily due to capacity constraints – should not re-emerge. The forthcoming DRM+ system will be launched in 2009, which will make further capacity available for digital radio use.

At the very least, I would expect the larger commercial radio stations to be transmitted at much better audio quality than they are now, and with a significant improvement in quality on commercial radio overall. Also, you would expect that the large increase in the number of stations that will be able to transmit will

"this shows what an absolutely ridiculous decision it was to adopt the old DAB system in the first place..."

sales have been slow to non-existent, such as France, Germany, Sweden and the Netherlands, are now likely to adopt the new standard; and Australia has already committed to using it. An official name for the new system will be unveiled in January, with the favourite option being 'DAB+', because it is in keeping with the names for other enhanced formats, such as AAC+ and DRM+.

As the system is being overhauled just four years after it was 'properly' launched in the UK when the BBC began advertising DAB on TV, this shows what an absolutely ridiculous decision it was to adopt the old DAB system, especially considering that much of the technology that is now being adopted existed in the 1990s. But as far as I'm concerned, an upgrade to the system really is better late than never.

## THE NEW STANDARD

The main improvement to the DAB standard is the adoption of the new AAC+ audio codec, the official name for which is HE AAC v2, which stands for High-Efficiency Advanced

audio quality, or a combination of both.

The stronger Reed-Solomon error correction coding that is being adopted will also make reception significantly more robust, which has been another Achilles' heel of the DAB system, with probably most DAB owners having experienced the highly annoying 'bubbling mud' sound that you hear if the signal isn't strong.

On hearing the news that DAB is adopting the AAC+ codec, some people have automatically taken the pessimistic view that because the broadcasters provided poor audio quality the first time around, they will do so again by simply reducing the bit rate levels, squashing as many stations on the multiplexes as possible, and there will be no overall improvement in audio quality. I disagree with this, because it completely underestimates the scale of the improvement in efficiency, but also because it ignores some practical realities.

For example, on its national DAB multiplex, the BBC could transmit all of its music stations plus Radio 4 using 128kbps AAC (AAC provides higher quality than AAC+ at bit rate

significantly increase the breadth of choice available, and you would hope that some of the niche music genres will be better catered for than they are at present.

## TOTALLY SURROUNDED

As mentioned, the MPEG Surround format has also been adopted for DAB. This is a brand new format that allows surround sound to be added to existing transmissions by the use of a very low bit rate data-stream of around 3 to 5 kbps. MPEG Surround is a 'backward-compatible' format, which means that receivers that don't support the format can simply ignore the datastream. It will be interesting to see in the coming years whether consumers take to surround sound on the radio, because it could provide a shot in the arm for some of the newer audio formats that support surround sound as standard, but which have so far failed to capture the public's imagination.

## THE BIG SWITCH OFF

The key issue for the UK switching over to using AAC+ is the availability of receivers that support the new standard. Thankfully, Frontier-Silicon, which produces the modules that power 80% of all DAB receivers sold in the UK is bringing out a new module that will support *both* new and old standards. The new module, called the Venice 5, is planned to be in the shops by spring next year. At first, receivers containing the module that also have a USB socket, such as those produced by market-leaders Pure Digital, will be software upgradeable to support the new standard – if you're thinking about buying a DAB receiver, wait until the spring! Then, by the end of 2007, receivers containing the new module will support AAC+ as standard.

The new Venice 5 module is based on Frontier-Silicon's newly designed Kino2 chip, which by using lower on-chip voltages and by moving external memory onto the chip itself enables their new module to reduce power consumption by a factor of seven compared with current DAB modules – an approximate tripling of battery-life for DAB portable radios. In addition, the new module will be cheaper and 50% smaller than Frontier-Silicon's previous modules, and they expect that manufacturers will quickly switch to using the new one in their products.

The other main DAB module manufacturer is Radioscape, which provided a prototype test receiver for trials in the UK and Australia recently, and they are expected to bring out a new module that

supports both standards next year as well. So, if the module designers and receiver manufacturers get their acts together, by the end of next year we should be looking at a situation where the vast majority of DAB receivers being sold will support the new DAB standard.

If that is the case then we are probably looking at there being in the region of 6 million legacy DAB receivers in the UK market. The good news, however, is that DAB sales are about to go into overdrive, because according to the Digital Radio Development Bureau's (DRDB) Five-Year Sales Forecast there will be 13m receivers in the UK market by the end of 2008 and 20m by the end of 2009. This compares with an expected 4.6m by the end of this year. This sharp growth in sales can be attributed to falling receiver prices and growth in areas where DAB penetration has previously been quite slow, such as micro systems, MP3 players and car stereos.

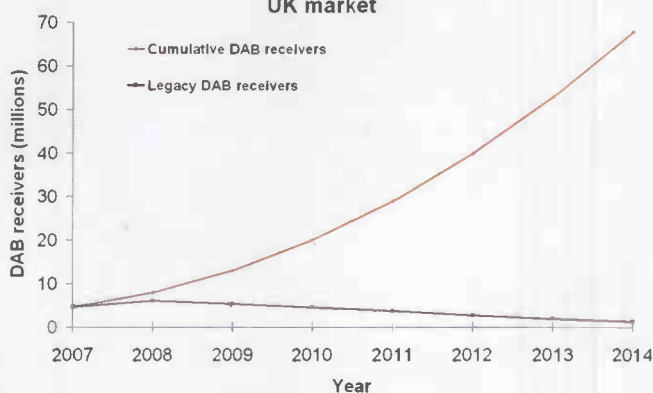
The graph shows the DRDB's sales forecasts along with projections going a further four years into the future using the assumption that receiver sales will continue to accelerate at the same rate. Although the cumulative sales figures may look high at first glance, you have to remember that the broadcasters do want to switch off FM, because it costs a lot to broadcast two systems simultaneously; and there's estimated to be around 120 million FM receivers in use of one sort or another, so if these kinds of sales figures cannot be achieved then FM switch-off might not be possible until around 2020, and the broadcasters would prefer to switch off much earlier than that if they can. The commercial radio industry has already called for the government to set a date for FM switch-off, which they declined to do; but the issue will be revisited in two years' time, and I wouldn't be surprised if a date will be set then.

The reason I've estimated that the number of legacy receivers will go down over time on the graph is because many people will replace their old DAB portable radios with new receivers, for reasons such as newer models offering much better battery life; new AAC+ stations being launched; and better features, such as the electronic programme guide (EPG) and recording to a memory

card, becoming more commonplace.

The main thing that the graph shows is that in a relatively short period of time the large majority of receivers will support the new standard, and the higher this proportion becomes the more new stations we will see using AAC+ – even if that means reducing the quality of existing MP2 stations. For example, reducing the bit rate of two MP2 stereo stations from 128 to 112kbps would allow a broadcaster to launch one new station using AAC+; or reducing a station from stereo to mono would allow two new AAC+ stations to be launched – one of the advantages as far as switching to AAC+ is concerned is the very high percentage of DAB receivers sold to date that are portable radios, because they

Forecast cumulative & legacy DAB receivers in the UK market



wouldn't be affected by a reduction of a station from stereo to mono (the speakers are only inches apart, so they produce no stereo image to speak of).

Indeed, reducing the stereo stations to mono would be a good way for the BBC to launch AAC+ versions of its stations, because, for example, 88kbps AAC+ stereo and 64kbps MP2 mono versions of a station can be carried in the same amount of space as is currently occupied by a 128kbps stereo music station, and the 88kbps AAC+ stream would offer far higher audio quality than at present.

Finally, a few years from now (towards the right of the graph), once the vast majority of receivers support the new standard (which is the condition that Ofcom has already stipulated must be met), Ofcom will allow the MP2 services to be switched off completely, and the old DAB system can then take its rightful place in the Museum of Ridiculous Broadcasting Decisions – where it's apparently got a space reserved for it right next to Kilroy's 'Shafted' game show, which would seem to be appropriate.

# Back To Basics

In this world of ever more complicated modern turntables, it's nice to see a famous name back with a classic design. Adam Smith takes Thorens' TD350 for a spin...

**F**rom the famous idler drive TD124 and belt drive TD150 of the 1960s through the later iterations of the TD160, TD320 Series and of course the awesome and rare Reference model, Thorens have produced a huge range of intelligently designed and well made turntables that gained a reputation for quality and longevity.

A fresh range of turntables and electronics were released in 2002 and new models are steadily being added. The first models were spectacular looking modern designs that made use of acrylic and metal as well as wood in their construction along with sleek styling. More recently Thorens have re-embraced their classic designs with the TD350, marking a return to a suspended subchassis design in a traditional wooden base.

The TD350 is a nicely finished unit available in black ash, red ash and maple finishes and with a choice of Thorens rebadged Rega RB250, SME M2-9 or SME 309 arms. The suspension system makes use of what Thorens describe as Independent Double Damping (IDD), which has separate damping systems for horizontal and vertical movement. The 12in platter weighs 4kg (9lbs)

and features bitumen damping, although perhaps not enough, as it still rings a little when tapped, and the supplied felt mat does nothing to stop this.

A synchronous AC motor with dedicated power supply unit drives the platter via a belt around its periphery, and the motor control circuitry has a neat feature that supplies double the torque at half the speed when first activated in order to reduce start-up time. As someone who has wasted many a minute waiting for a TD150 to wobble into life, I am pleased to see it works!

Assembly and set-up of the TD350 was problem-free, as the suspension is preset to the factory-fitted arm. If a different arm is to be fitted, suspension adjustment is straightforward. The springs can be assessed through holes covered by brown plastic caps in the top plate.

## SOUND QUALITY

With an Ortofon Salsa moving coil cartridge installed, the first album onto the platter mat - a disappointingly sloppy fit to the spindle - was our current office favourite - 'Ta Dah' by the Scissor Sisters. As a user of an idler drive deck, I was unable to resist pointing my ears directly at the bass end of

the spectrum.

The initial drum beats of 'I Don't Feel Like Dancin' lacked the ultimate punch-in-the-stomach effect of my own Garrard 301, or even our office Pioneer PLC-590 direct drive. All the same, the TD350 had excellent pace and rhythm, bouncing along with real enthusiasm.

Moving over to 'Snowbound' from Donald Fagen's 'Kamakiriad' album showed good levels of depth to the bass guitar and superb detail retrieval. In an area where belt drive decks can often show weakness, the TD350 acquitted itself superbly, no doubt aided by a strong motor driving the full diameter of a heavy platter. Attempting to slow the platter by hand revealed a commendable amount of resistance from the drive system; something which cannot be said of some older Thorens belt drive decks.

Treble from the Thorens set-up was clear and concise, with very good presentation of subtle details, and the Mariachi sounds of Calexico's 'Crystal Frontier' were enthusiastic, with excellent instrument separation. Moving to Phil Collins' 'Hello I Must Be Going' I once again noticed the lack of physical impact from the



"the TD350 had excellent pace, bouncing along with real enthusiasm..."

opening bars of 'I Don't Care Any More', but bass was still plentiful and the slightly raucous nature of Phil's voice when he really gets going on this track was faithfully conveyed.

With female vocals, the Thorens set-up seemed less assured and I would personally point an accusing finger at the Rega-sourced arm in this respect. Whilst it is a well engineered and competent unit that is good value for money, I have always found the RB250 to be a tonally grey and uninvolved device, especially in stock form, and this quality dominated the turntable's sound with vocals. Tift Merritt's vocals on her 'Tambourine' album were clear and detailed, but she sounded rather detached, almost as if she wanted to get the whole thing over and done with as soon as

possible so that she could go home! This is something I have noticed with virtually every Rega arm derivative I have ever heard and I feel that the TD350 is deserving of a better companion in this respect.

**CONCLUSION**

The Thorens TD350 is an interesting product that marks a welcome return to form for Thorens. Despite some concerns about fine detailing, such as the level of platter damping and the sloppy fit of the mat, the TD350 is an intelligently designed and well constructed unit; I enjoyed my time listening to its civilised and assured sound, including its commendable bass performance - an

area in which many belt drives can be found wanting.

The deck is ultimately limited by the TP250 arm and I find the idea of supplying a £1,875 turntable package with a £125 arm a little unusual. One of the two SMEs also offered by Thorens, the M2-9 or 309, make more sense. However, at £643.30 and £845.34 respectively these will raise the total package price considerably. As it stands, however, the TD350 is more than worthy of consideration, despite the fact that it is not cheap and faces stiff competition from the likes of Acoustic Solutions, VPI, Project, Roksan, Clearaudio and Michell in its price bracket. As always, an audition is mandatory.

**VERDICT** ●●●●  
An endearingly enjoyable classically designed turntable that will win many friends, but deserves a better tonearm.

**THORENS TD350-TP250 £1,875**  
'A' Audio Marketing Ltd.  
☎ +44 (0) 870 199 3914  
[www.a-audiosolutions.com](http://www.a-audiosolutions.com)

**FOR**  
- drive system  
- bass performance  
- even, detailed sound

**AGAINST**  
- poor platter damping  
- TP250 arm

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## staff favourites

here are just a few and in no particular order....



Eastern Electric  
Minimax Valve CD Player  
(Hi-Fi World Award Winner)



Manley Labs  
Stingray Valve Integrated Amp  
(Exceptional value for money)



JungSon  
JA-1/JJA-99c Pre/Power Combo  
(Hi-Fi World Award Winner)



Bel Canto  
eOne REF1000 Monoblock  
(Our advice to you - buy a set!)



ATC  
SCM40 Speakers  
(Part of a superb new range)



Musical Fidelity  
kW250S All-in-one  
(Audiophiles single box solution)



JAS Audio  
Orsa Speakers  
(Hi-Fi+ Award Winner)



Clearaudio  
Ambient Turntable  
(A musical gem)



Musical Fidelity  
kW550 Integrated Amp  
(MF does it again - stunning!)



Musical Fidelity  
X-Series  
(MF has that true X-Factor!)



ART Loudspeakers  
Emotion Monitor  
(New to the Emotion family)



DK Design  
VS-1 Reference Integrated  
(A true reference among amplifiers!)



Hyperion  
HWS-733 Loudspeaker  
(The Hyperion 938 for a small room)



IsoTek  
Sigmas  
(Take your system to the next level!)



QinPu  
A-8000 Mk II Integrated Amp  
(A Hot Seller!!!!)

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DIGITAL	
Meridian 200 Transport and 203 DAC combo, absolutely mint, great sound	£349
Gryphon Adagio CD Player, immac cond, boxed, remote+puck (£5000)	£2495
Micromega Aria, black, ex HiFi Choice review model (£2150)	£1595
Shanling CDT-200, exc cond, boxed, r/c, gold legs (£2150)	£1295
Primare D30.2 CD Player, black, 1 yr old, boxed, excellent cond (£1500)	£749
Arcam Diva 93t, silver, exc cond, boxed, manual, r/c, 1 yr old, (£1000)	£595
Musical Fidelity DM25 DAC + Transport, only a few months old (£4000)	£2995
Musical Fidelity kW SACD player, boxed, factory sealed box (£4000)	£1995
AVI Lab Series CD, current spec, boxed, unmarked condition (£1499)	£1195
Shanling CDT300 Omega Drive, ex-dem, immaculate cond (£4000)	£2895
Resolution Audio Opus 21, 2 box cd player, boxed, black/silver (£2950)	£2395
Marantz SA-11S1, mint, 6mths old, champagne finish, boxed (£1999)	£1395
Musical Fidelity TriVista 21 DAC, exc cond, manual, boxed (£1400)	£695
Unison Research Unico Valve output CD, latest spec 24/192 model (£1250)	£795
Unison Research Unico Valve output CD, only 3mths old, latest ver (£1250)	£895
AMPLIFIERS	
Qinpu A1.0x, ex What HiFi review model, boxed in immac cond (£300)	£230
Qinpu A-8000 Mk II, ex HiFi World review model, boxed as new (£1295)	£895
Parasound A21 Power Amp, immac condition, silver, only 1yr old (£1500)	£895
Musical Fidelity A308 pre-amp, immaculate, boxed, manual (£1999)	£995
Musical Fidelity A5 Int, 250wpc, 6 months old, boxed, as new (£1499)	£995
Musical Fidelity A5 Power Amp, 6 months old, boxed, Immac (£1499)	£995
AudioNet Amp 1 Power Amp, silver/blue display, boxed, mint (£3150)	£2195
Bryston B-100 SST Int amp, unmarked condition, boxed (£2750)	£1995
Roksan Caspian MK2 integrated, boxed with manual and remote.	£595
Roksan Caspian power amp MK2, boxed. Be quick - a steal at the price!	£495
Chord CPA2800 pre-amp+phono stage, £2800 new, in black, immac	£1395
GamuT D200 Power Amp, silver, immac condition, boxed (£3200)	£1695
Croft Epoch Pre Amp, ex-dem, boxed, immac cond (£1500)	£995
Jungson JA-88D Int, class A, ex-dem, boxed, mint (£899)	£1695
Bel Canto Evo 2i Integrated, boxed, mint cond (£2800)	£749
Musical Fidelity kW500 Int, 1yr old, boxed, mint (£4000)	£2795
AVI Lab Series Power Amp, imma, less than 1yr old, boxed (£1650)	£995
Eastern Electric M520 Int, What Hi-Fi 5 star review, 4 mths old (£1539)	£1095
McIntosh MA275 Integrated, mlnt condition, less than a year old	£3995
Eastern Electric Minimax Pre, ex-dem, mint condition, boxed (£769)	£649
AudioNet Pre 1 G2, silver with blue display, mint, box, remote (£2100)	£1495
Krell PAM 5 pre amp + phono stage, exc cond, legendary perf (£2000)	£549
Cyrus Pre XVS, immac cond, only 5 mths old!, one prev owner (£1000)	£749
Primaluna Prologue 5 Power Amp, EL-34 valves, 3S wpc, mint (£950)	£695
Nagra PSA Power Amp, very rare, only 6 months old!, immac, stunning	£3595
Audionet Sam V2 Integrated, silver, boxed, exc cond (£2400)	£1195
ATC SIA2-150 Int amp, black, mlnt cond...as good as brand new (£2400)	£1895
Shanling SP-80C Monoblocks, excellent, gold legs, fully boxed (£2000)	£1295
Unison Research Unico Line, only 3 months old!, boxed, manual (£950)	£749
Unison Research Unico SE Int amp, mint cond, boxed, manual (£1375)	£795
Bow Walrus Power Amp, boxed, exc cond, 150wpc (£3995)	£1995
Bow Warlock Pre, boxed, exc cond, fully balanced, r/c (£3495)	£1695
LOUDSPEAKERS	
Hyperion 938, gloss black finish, immac cond, very low hours (£3750)	£2995
Quad 989, Vintage finish, only 6 months old, boxed, mint cond (£5000)	£3795
Acoustic Energy 1 MkIII, B stock, slight mark to front right corner (£1995)	£1495
Wilson Benesch Arc, silver stands and side cheeks, immac cond (£2600)	£1795
B&W CM4 speakers, In Rosenut. 5 years old, boxed	£449
Wilson Benesch Curve, ex-dem, high gloss stained red cherry finish (£5352)	£4695
Mission Elegante E82, 1yr old, boxed in superb condition (£1300)	£749
Quad ESL-63 Electrostatics, mint condition!, vintage finish (brown grills)	£1149
PMC FB1+, cherry, boxed, immac cond, few mths old! (£1695)	£1295
Monitor Audio GR20, 2 yrs old, black, boxed, exc cond (£1500)	£795
Monitor Audio GR60 (4 mths old) immac, cherry (£2395)	£1595
Innersound Isis Hybrid Electrostatics, exc cond, incredible (£2300)	£1245
PMC OB1, in oak, boxed as new, 6 months old, simply stunning! (£2700)	£1995
JAS Audio Orsa, ex HiFi Plus review model, poplar tumor (£1399)	£1149
JAS Audio Supertweeters, Review pair, sound awesome!! (£649)	£595
Audio Physic Tempo 4, cherry, exd model, Immaculate condition. (£2199)	£1699
Audio Physic Virgo III, cherry, 6mths old, boxed, as new (£3999)	£2250
ANALOGUE	
SME 20/2a, inc SMEV tonearm, unmarked cond, few mths old (£6300)	£4495
Trichord Diablo phono stage, exc cond, only 9mths old, boxed (£750)	£495
Wilson Benesch Full Circle, boxed as new, exc cond (£2100)	£1495
Tom Evans Groove Plus phono stage, boxed, mint cond (£3600)	£2395
Eastern Electric Minimax Phonostage, ex-d, mint, boxed (£1099)	£895
VPI Scout inc JMW-9 tonearm, immac cond, boxed, very little usage (£1300)	£1195
MISC	
Isotek 2K Qube2, boxed, in silver, sensational mains conditioning unit. (£1595)	£595
Isotek GII MiniSub, silver front, current spec, immac cond (£545)	£395
Vertec Roraima Plus mains cable, 2m long, exc cond, stunning (£532)	£349
Townshend Supertweeters, titanium finish, boxed as new, exd (£800)	£649
Isotek Titan mains conditioner, few months old, boxed (£1500)	£1095
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# Furry Logic



**No, the Flying Mole CA-S3 isn't a small furry thing, but a dinky Class D solid-state integrated amplifier. Noel Keywood gives it a blind listening test...**

**D**igital amplifiers are an evolving breed. Designs from a few years ago sounded harsh, for very obvious reasons: high distortion. Modern designs from NuForce and Lyngdorf are very different; both use more sophisticated circuit techniques, mainly dual feedback loops and low pass filtering (Lyngdorf), to suppress distortion. Flying Mole's tiny CA-S3 amplifier reviewed here strikes me as an interesting and idiosyncratic variant that contains a bit of both, at a much lower price than either, around £550. This suddenly makes going digital easier on the pocket, but would you want to? Well, according to internet gossip this little amplifier might persuade many to do so; it reputedly sounds good; but does it avoid digital harshness?

Flying Mole isn't an inappropriate

name as the CA-S3 had us a little perplexed as such an animal might. Yes, it does sound very good, but measurement suggests otherwise. It does fly too - in under the radar of human perception to avoid the obvious nasties that I have heard from earlier Japanese designs, from Sharp digital amplifiers for example. It's true to say the CA-S3 is an interesting animal and I can understand listeners taking to it. We were impressed by it at *Hi-Fi World* towers.

The Japanese Flying Mole Corporation package this tiny amplifier in a small box, accompanied by a simple fold out pamphlet, acting

as a handbook. The reason being it is a very simple amplifier to describe and use. Weighing 1.4kg (3.1lb) it measures just 20cm front to back overall, including rear protrusions, and 13cm wide. More surprising is that it has just one pair of phono socket inputs, so there is no input selector. The pamphlet shows a CD player or 'memory player' as likely sources.

Nothing is said about source swapping; you either get a switching unit like the QED IX20 or change

plugs physically, if you want to change sources. I know from reviewing experience that most sockets fail after repeated usage of this sort, so

"the CA-S3 is an interesting animal, and I can understand listeners taking to it..."



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**MOLE SPOTTING**

Flying Mole Corporation was started on November 9th, 2000, in Hamamtsu, Japan. A very small specialist company by Japanese consumer electronics standards, there are just twenty five employees. The president is Yasumasa Sasahara. Essentially, it's an high technology electronics engineering specialist – developing, manufacturing and selling Class D equipment and devices for audio systems, along with heat insulating materials to be used as thermally corrective countermeasures. The company has a strong environmental sensitivity, which explains its use of low power consuming Class D amplification. It says, "it is our business philosophy and motto to make things creative, simple and beautiful. More specifically, to develop products which are viable in the 21st century as well as in harmony with nature and environmentally friendly".

the CA-S3 is best used with one source, in a simple CD or LP vinyl system for example, or with a switch box. As it is massively sensitive it would suit a low output phono stage preamplifier or iPod as much as a high output CD player. Volume must be turned right down with CD, but as Flying Mole claim, it sounds good at low volume.

The loudspeakers connectors accept only bare wire; they will not take 4mm plugs and are not meant for spades either, which may secure okay but would likely short down to the chunky, sculpted and smoothly finished aluminium casework. The CA-S3 will go anywhere then. It has no earth lead (this is legal) and draws just 15W from the mains, so it would work with a lighting connection. An owner is faced with an on/off button, a small blue warning light and a volume control - hardly intimidating.

Our measurements showed the CA-S3 produces little distortion across the midband but it is less impressive at high frequencies. So we listened intently across a wide range of material and ended up impressed, if with some reservations. The CA-S3 sounds startlingly fast, crisp and glass-clear. The opening drum sequence of Steve Earle's 'You Belong To Me' from 'Copperhead Road' had massive dynamic punch through our resident Spondor S8s, yet it was as tight as I have ever heard it - or even tighter! That might seem ambiguous, but I have to bring in the notion of enhancement here. It could sound tighter than was naturally possible, because it was sharpened up, almost Decca London style.

The CA-S3 has a glassy clarity that at times went just a little too far. I ran this little amp against the similarly crisp Audioblab 8000S we reviewed last month and what an interesting comparison this was. I chose Steve Earle because the closely miked, chiming steel string guitars that characterise his music produce strong high frequency content that

highlights treble problems.

Did I hear digital distortion? Overtly, no. His guitar sounded more vivid than I am used to, crisp to sharpness and brightly lit, but not distorted. Only toward the end of 'Even When I'm Blue' did I detect hard-struck cymbals sounding more like glass than metal. But this was a small price to pay in terms of absolute tonal accuracy for gains made elsewhere, especially in clarity, vivid dynamics and perfect timing. However, whilst the CA-S3 made the Audioblab sound opaque and dynamically restrained, the Audioblab showed the CA-S3 had drawn timbral colour and richness from instruments.

This became more apparent with classical music, as you might imagine. Rachmaninov's 'Piano Concerto No 1' was wonderfully clear through the CA-S3, the orchestra precisely arranged across the soundstage, sudden interjections from strings stabbing out with speed and authority. Whilst the Audioblab didn't match this little amplifier's seeming clarity, composure or dynamism, it possessed a wider, richer and more convincing tonal palette. The performance was lush and instruments better differentiated in tonal character.

How to choose between the two wasn't clear to me; both amplifiers had particular strengths. I spent a lot of time with the CA-S3 though and never found myself wincing at its delivery. It flew in under my perceptual radar and avoided being shot down, as Mathias Rust once did with the Soviets! For every piece of hard sibilance that bordered

on lacerative there was, it seemed, a greater number of events when the CA-S3 more than justified its existence. I should note that it is more like the NuForce amplifiers than the super smooth Lyngdorf, and it even measures like them too.

So here is a little digital wonder box, of minuscule proportions but massive audio presence. I can see why it is the talk of internet chat rooms. What it does is both obvious and incredible. It isn't perfect and it is digital; valves don't sound like this, but I can see what Flying Mole are getting at. The CA-S3 is as fast and dynamic as the best single-ended, graphite anode 845 you'll hear - or will probably never get to hear! It may not have the tonal palette or the liquidity, but it hasn't got the same price tag either.

**VERDICT** ●●●●●

Oddball miniature integrated that's surprisingly musically convincing at the price, but be careful how your partner it.

**FLYING MOLE CA-S3 £499.95**

ICG Consultancy  
+44 (0)1442 399548  
lan.galloway3@ntlworld.com

**FOR**

- engaging, articulate sound
- input sensitivity
- size

**AGAINST**

- distortion

**MEASURED PERFORMANCE**

This is a PWM 'digital' amplifier that produced 24W into 8 Ohms under test, rising to 30W into 4 Ohms - not a lot, but sufficient for sensitive modern loudspeakers, meaning floorstanders.

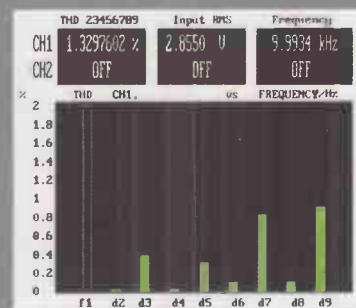
The distortion behaviour was unusual, better than old PWM amps, but not up to Lyngdorf standards. There's no low pass filter above 20kHz like the Lyngdorf, so harmonics extend upward, and at 1W, 10kHz things don't look so good, the CA-S3 producing 1.35% distortion, as our analysis shows. However, above 3V or so at 10kHz, the distortion harmonic pattern stabilises and levels settle to 0.4% - not wonderful but not too bad either. In the midband the CA-S3 produces 0.055% at 1W and 0.16% at full output, -1dB. So the amplifier is good across the midband, into 8 or 4 Ohms I should add, and fair at high frequencies except at low level.

Radio frequency (rf) output is reasonable at around 12mV at 526kHz, considering there is no filtering. Frequency response extends upwards past the -1dB point at 24kHz without plummeting, again due to absence of filtering. The subsonic limit is 3Hz (-1dB) and damping factor 40. Like all

digital amps this one has a d.c. voltage on both loudspeaker terminals, in this case a modest 11.3V, but offset was high on both channels at 47mV / 62mV. The CA-S3 is very sensitive, needing just 170mV in for full output.

The Flying Mole CA-S3 measures better than most digital amps, but it is far from perfect. NK

Power	24 watts
CD/tuner/aux.	
Frequency response	3Hz-24kHz
Separation	71dB
Noise (IEC A wtd)	-89dB
Distortion	1.35%
Sensitivity	170mV



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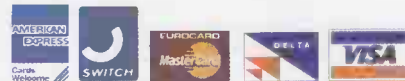
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# Show Time

Adam Smith found that it's nice up north, when he visited Practical Hi-Fi's Home Entertainment Show 2006 at the end of October...



**T**he dull and wet weekend of the 21st and 22nd October saw a brief ray of sunshine in Manchester, in the form of retailer Practical Hi-Fi's Home Entertainment Show 2006 at the Renaissance Hotel in the centre of the city. Fortunately the weather, a Formula 1 Grand Prix and a Manchester United vs. Liverpool home game on the Sunday were not enough to keep the audio die-hards away and a steady procession of people came along for the aural delights on both days.

The likes of Sony, Pioneer and Yamaha amongst others were showing off multichannel setups, keeping us entertained with a good range of explosions. Samsung also chose this show to unveil and offer for sale their new Blu-Ray player, which was drawing a great deal of interest. However the majority of the demonstrations were two-channel and quite a few interesting new items were on display...



*Mike Jewitt and Revolver were demonstrating their new flagship Cygnis loudspeakers on the end of a full Naim setup. The sound was dynamic and impressive, which no doubt contributed to the fact that the room seemed busy on both days and provoked a lot of favourable comments.*



Cyrus Electronics were exhibiting their new Discmaster DVD player and DAB 8.0 tuner. The latter is a particularly interesting device as it has the ability to pause live radio or even record your favourite show onto an SD memory card, and all for £500.



Proac unveiled their new £3,250 Response D28 compact floorstanders driven by a Sugden A21SE amplifier and CD21SE compact disc player. These sounded very promising and we hope to review a pair soon.



Quad had several new products on show in their room, including the second versions of the L series loudspeakers, a dedicated phono version of their QC24 pre-amplifier and some new valve power amplifiers, the II Classic, a junior version of the KT88 equipped II-Forty. The Classics use KT66 output valves to generate their 15W output. Playing in the room was a Quad 99 CD-P Compact Disc player and 909 power amplifier, through a pair of Quad 2905 electrostatic loudspeakers. The Quad team kept our stand entertained with a fine selection of music over the week-end!



In the Henley Designs room, Roksan were showing off prototypes of their new Caspian M Series Platinum electronics. This range will comprise a two channel 260W power amplifier for £4,000, a fully balanced preamplifier for £2,500 and a £2,500 phono stage with balanced inputs and outputs. They were set up as a system with a Xerxes 20 turntable and a pair of Caspian FR5 loudspeakers and sounded great.



Pure Sound were demonstrating their upcoming CD player and valve integrated amplifier using a pair of the £2,000 ART Stiletto 6 loudspeakers. The amplifier is a 30W design using 6550 output valves in push-pull and will retail for £1,100.

# icon Audio

## Two New Icon Amplifiers!

Icon amplifiers have set new standards of performance, design and value for money. This continues with our two latest additions. In our quest for a "smooth, relaxed valve sound" we have taken inspiration from hi fi pioneers like H J Leak and D T N Williamson

### **New Stereo 50** *integrated/Power amplifier*



Brand new UK design. KT88 2x 55w rms. Integrated or switchable Power Amp facility. All Triode driver stage using the excellent 6SN7/6SL7 valves. Triode output mode 2x 27w. Silver audio cable. ALPs volume pot. Choke regulated PSU. Three inputs plus tape loop. Hand wired "Point to Point". Hand wound transformers. Beautiful stainless steel and Plexiglas cover included. Vital slow warm-up/Standby facility included. From £1,199 Inc Russian valves (Upgrades available)

### **New MB 90** *100w mono-blocks*



Incredible 100 watts RMS KT90/KT88 mono-block amplifiers. Brand new UK design. Low & high sensitivity. Can be passive or pre amp driven. All Triode driver stage using the excellent 6SN7/6SL7 valves. Triode output mode 2x 45w. Silver audio cable. Choke regulated PSU. Hand wired "Point to Point". Hand wound transformers. Beautiful stainless steel and Plexiglas cover included. Vital warm-up/Standby facility included. From £1,699pr Inc Russian valves (Upgrades available)

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"whilst some hi-fi websites are informative and useful, they can also be something of a minefield..."



## dominic todd

**T**hey say that, "a little learning is a dangerous thing". In modern times this is probably more apt than ever, thanks to the communication explosion the Internet has brought about. These days, "old wives" reside in cyberspace, and if you want six different diagnoses, and treatments, for that spot on your neck then it's the Net and not the village shop that you turn to...

Of course, the Internet has had profound effects upon the world of hi-fi, too. In addition to the volume of trade being carried out on online sites, there are also many forums aimed specifically at the audiophile. Now, whilst some of these sites are well organised, informative and a useful resource, they can also be something of a minefield – especially for those new to the delights of hi-fi. Recent experience of one such site left me pretty confused myself.

In most cases, for every advocate of a particular brand or product there was a detractor. A user praises a product, another knocks it down, and this process then carries on for an eternity. Sometimes useful information can be gleaned from the thread, but at others it's just one diatribe after another. To add to the confusion, you never quite know who is giving the advice. At least with a hi-fi journalist, manufacturer or retailer they are accountable, and their motives for recommending particular products are transparent i.e. it's something they've listened to and like, or they happen to make or sell it.

In the past, magazines and retailers have also had differing opinions of products and brands, too. In actual fact though, I think that there was and indeed, is, more consensus than from the forum

websites. Better still, if journalists or even retailers did/do differ over a particular product then this can usually be backed up with well articulated knowledge and not second-hand hearsay. By no means would I cast these aspersions upon all forum sites and on all threads, but I do remain unconvinced and, it has been said, exasperated by many of them.

One issue that the more enlightened forum sites will always mention, though, is that of the importance of the demonstration. It makes me shudder to think of all the thousands of hi-fi transactions that happen without the purchaser ever listening to the product – let alone even being able to check it for cosmetic or, worse still, operational faults. There are no figures I know of for disheartened hi-fi buyers online, but anecdotal evidence has proven to me that there are plenty of people out there who have regretted buying second-hand hi-fi online without listening to it first. This is one area, then, where the traditional bricks and mortar retailer can really shine.

Any hi-fi separates retailer worth their salt will offer either full listening facilities in the store or at least the chance to try a product at home and take it back if not satisfied. It may take a little more time than a few clicks on the mouse, but the knowledge that you 'tried before you buyed' is invaluable for a product that is probably quite expensive and long lasting.

There are those, even within the industry, that say the listening process is all well and good, but that it can be intimidating for newcomers. Even asking for a simple demonstration using a switching comparator can put buyers off as they feel obliged or pressurised by the sales assistants.

We've probably all felt there have been times when we just want to be left alone to peruse a store in our own time. This is where stores selling TVs really benefit. A shop can have a dozen or so flat screen TVs running simultaneously making it easy for the shopper to compare without any assistance whatsoever. If only the same could be done for hi-fi without the need for a dozen separate rooms or pairs of headphones!

Whilst this still remains something of a challenge for hi-fi retailers, I was recently struck by an excellent 'user interface' idea from across the water. The water in this case isn't the Atlantic, but the North Sea. The Scandinavians are well known as being some of the world's most eager fans of separates, and with retailers as enlightened as Hi-Fi Klubben it's not hard to see why. The group covers Denmark, Sweden and Norway and buzzes with excellent ideas that UK retailers could learn from. One of the simplest, yet surely effective, was their 'green button' test. Effectively this involves an iPod in one of the leading brand audio docking stations with a separate amp' and speakers adjacent. By simply pressing the green button, customers can hear the iPod played through proper hi-fi or the docking station at the push of a button – and without a salesperson in sight.

As a reader of this magazine, you probably need little convincing of the difference, but for anyone new to audio it's this sort of demonstration that can be crucial in sparking a longer-term interest in hi-fi. Of course, once this interest is sparked then a home or shop demonstration become important. At least, though, that first intimidating step has been taken and, crucially, that little learning is not so dangerous after all. ●

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## Mystery hi-fi face of the month



*"Anyone know who he is? Answers on a postcard, please..."*

## Solid Tech

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"we all deserve a pat on the back for not jacking it all in and buying a mini system!"



## adam smith

A couple of comments from readers at the Manchester show last month started me pondering the whole hi-fi hobby and the lengths we enthusiasts go to in our search for good sound. If we want a new washing machine, for example, we might have a quick ramble through one or two of our local emporia, possibly taking advice from friends who have bought one and then just shop around until we find it being sold with the best combination of price and warranty. I'm not actually aware of anyone taking their washing into the shop to compare the cleaning performance of five different machines, but I could be wrong.

Making a hi-fi purchase for an audiophile tends to be like trying a wide and fast flowing river with many wobbly stepping stones on it. One is the good old "wife acceptance factor" that invariably creeps in unless you happen to be single or blessed with a particularly understanding partner. It more often than not curtails the procurement of those spectacular sounding loudspeakers that just happen to resemble a wooden fridge-freezer. Small is good, we are told, but attempting to squeeze a quart's worth of performance into a physical pint pot has often proved to be unsuccessful. Anyway, for some of us, including me, there's visual satisfaction gained from owning a huge lamp-and-knob-festooned behemoth.

Having crossed this physical minefield, the next one concerns manufacturer. Outwardly this seems to be a non-issue, as we all know our ears should make the decision, but unfortunately there are quite a few manufacturers out there who attract very strong feelings from the buying public. Clearly, we should all be approaching our audio purchasing

with an open mind but it is not always that easy. A brief surf of a few of the more obscure audio internet forums will dig up some amusing discussions which descend into quite heated slanging matches and I often find myself with the impression that one or two participants haven't actually heard any items by the manufacturer in question! Now we can't imagine any World readers being so narrow-minded but, for many, some options may already have been crossed off the shortlist purely because, "I wouldn't buy anything made by them". Issues such as build quality and backup can come into this of course.

Then there's the issue of buying. Here's a whole new area in which to have our fingers burnt! Do you go to a dealer who you hope to be knowledgeable, efficient, impartial and helpful or try to go it alone? Judging by one or two letters we have received recently some readers would clearly rather avoid dealers as the experiences they have related to us would be akin to taking your car to the garage for new tyres to be told that your tyres have worn out because your car is rubbish - so why don't you buy a nice new car instead?

Even if your dealer is superb (and don't be disheartened - there are plenty of good ones out there!) how do you cope with the fact that each one cannot possibly stock everything and the nearest dealers to your Cornwall home that sell the two CD players you want to compare are in London and Manchester?

Nowadays there is the option of the Internet and eBay but the pitfalls mentioned in David's feature on the latter in this issue are enough to put many people off. However, if you make it this far and finally have your shortlist, it's then time to start

listening - you'd think you were within a decent leap of the finish now but, oh no - far from it!

A huge issue that faces any hi-fi manufacturer when designing a piece of equipment is that, if you set up a system and ask ten people to go and listen to it, you will nearly always receive ten different opinions on how it sounds and whether it is 'any good' or not, so the age-old question arises of which, if any, of the opinions are right?

The problem is that we all have different hearing and also different tastes in music and, whilst this makes for an excellent variety of different-sounding equipment, it does make things rather tricky for the consumer. It is easy for manufacturers to build an amplifier that is superb because they find it great sounding with Metallica, whereupon a classical-loving valve enthusiast goes to listen to it and wonders why cellos sound like a rather annoyed cat being dragged across a large piece of Velcro. The truly universal hi-fi component that draws the same positive comments has never been invented and probably never will be.

Ultimately, it seems we have chosen ourselves a hobby that can be frustrating, time-consuming and expensive, if one that offers huge rewards and personal satisfaction when we finally get it right. In fact I would go so far as to say that I think we all deserve a pat on the back for not jacking it all in and buying a mini system, the audio equivalent of the washing machine I mentioned earlier. Most people don't compare the relative merits of water inlet hose materials in obtaining best cleaning power and the benefits of gold plated feet for optimising spin efficiency as do hardened audio enthusiasts. And a whole industry exists around this ... ●

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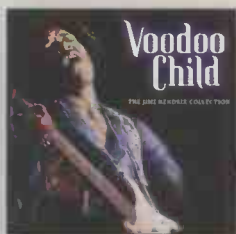
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"Who better to evangelise the new vinyl convert than the men of passion, the specialist dealers...?"



## paul rigby

**D**igital downloads are dominant in the market. In fact, they are being hailed as the saviours of the music industry. But what about the traditionalists amongst us? The purists? Those who are looking for a quality of sound first and convenience after? Vinyl has survived thus far but, as an addendum to last month's feature, 'Diamond Life', the questions that need to be addressed are: will vinyl prosper in the future and, if not, is the hi-fi retailer partly to blame for standing idly by whilst it takes its last breath?

When CD hit its digital heights in the eighties, the media declared that vinyl was dead. It is, but only as a mass medium. However, like any mature industry which has experienced its 'pile 'em high, sell 'em cheap' frenzy, what remains after the storm are specialists that serve the niche. Take the UK as an example and look at everything from clothing to bicycles, from handbags to PCs to, well, hi-fi.

Once a mass market is bled dry, the money men either change the product (from vinyl to CD to downloads, basic PCs to custom built Power PCs) or they change the territory to lower production costs (USA to Korea, UK to China) or they go upmarket (basic bags to Burberry). Often, the shock of an industry collapse: the media headlines, the job losses and the industrial change in direction dominates public awareness, leading to a perception that that industry is no more. Such was vinyl. The dramatic format change in the early eighties, from vinyl to CD, caused a shock that many music fans

have yet to recover from.

The mass market switch to CD created a business opportunity for those prepared to take vinyl into the upmarket and/or specialist categories. Specialist audiophile labels and retailers in both Europe and USA say that their business is healthy. In fact, Chad Kassem, CEO for the major US retailer, Acoustic Sounds, said that 70% of his sales are taken up by vinyl and, in the past three years, he declared, "Acoustic Sounds Inc. has grown 30%."

What, in fact, we are seeing is the establishment of format choice. Other industries are seeing the same adjustment. For example, you can view TV on portable TVs, PC-specific 'IPTV' will see the increase of dedicated and specific Internet-only TV channels whilst the mobile phone outfit, 3, already sells unique live TV concert events. But that doesn't mean the living room TV is about to die. What it means is that today's consumer society is becoming less generalised and more specialised. Niche is 'in', and one of those niches, vinyl, has found its market position because music is now being developed to fit in with our varied and different lifestyles.

Yet that doesn't mean that vinyl is safe from extinction. Its primary problem is distribution - think about it, you go to a specialist hi-fi retailer to spend thousands on a new vinyl-based system. You pay up, take your kit home where you carefully set up your new baby to play your vinyl collection. Fine, but not everyone has a vinyl collection, as most people these days are silver disc based.

Tony Hickmott, MD of the UK audiophile outfit, Pure Pleasure, is

adamant that the UK hi-fi retailers could be doing an awful lot more to square the circle, "For the educated, availability is not a problem, but as regards bringing on board new customers something needs to be done. The snobbishness of 'audiophile' does, I believe, frighten many people away. There needs to be much more communication between the audiophile equipment manufacturers/retail outlets and the vinyl labels/distributors. A person goes into the hi-fi shop and spends thousands of pounds but has nowhere to go immediately for some vinyl other than the Internet. The two ends need to become more connected. We both need each other. A piece of equipment is not the full trip. It requires some vinyl to realise and display its value."

So why don't we see full racks of audiophile vinyl in hi-fi shops? Wouldn't it make sense for these retailers to act as a 'one-stop-shop'? Vinyl is a tactile and visual medium, audiophile vinyl doubly so. It works on the Internet only to the converted. For the beginner, an Internet website listing a batch of audiophile vinyl is like visiting a restaurant and ordering a cookbook for your main course. Who better to evangelise the new vinyl convert than the men of passion, the specialist dealers?

Downloads are finally making money because the prehistoric music industry has finally embraced technology and new methods of distribution. It has taken the bull by the horns and dared to be 'different', broken through boundaries that were previously off limits and are addressing new forms of business models. Now, retailers, do I need to make myself any clearer? ●



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"they were dead against upgrading DAB, but events forced them to do so..."



## steven green

**S**hock, horror! News comes that our Digital Audio Broadcasting system is being upgraded from MP2 to AAC+! The powers that be were dead against doing this, but events forced them. The downfall of the old DAB system is the result of the development of the DVB-H and DMB systems, which are extensions to the DVB-T (the system that Freeview uses) and DAB systems, respectively, that were developed to allow TV channels to be received on mobile phones – mobile TV.

Although these systems were developed to carry mobile TV, their use of modern audio and error correction coding makes them far more efficient than the old DAB system for carrying digital radio stations. Indeed, I pointed out to the Radio Authority (who were the radio regulators at the time) in my response to a public consultation in January 2004 that DVB-H was 340% more efficient than DAB in terms of the number of stations it could carry, and that it was thus better suited than DAB for digital radio. Needless to say, the Radio Authority, which had allowed DAB to get into the mess it was already in, ignored my recommendation...

Undeterred, I continued supporting DVB-H – and later supporting DMB as well – through my [www.digitalradiotech.co.uk](http://www.digitalradiotech.co.uk) website, highlighting the enormous difference in efficiency between DAB and the modern systems. The gap in efficiency between DVB-H and DAB grew to 500% in December 2004 when DVB adopted the more efficient AAC+ codec. Over time, a number of organisations from other countries came to the same conclusions as I had done.

The first organisation to speak out against DAB was the Irish regulator ComReg, which published

a report in September 2004 where they said, "There are serious concerns that in order to provide a financially viable DAB service, it is necessary to increase the number of channels per multiplexer and by doing so eliminate the key advantage of DAB, that of near CD-quality audio. It may therefore be prudent to leapfrog the Eureka 147 DAB system and implement newer technologies that better utilise the spectrum". No prizes for guessing which country they were referring to there.

Then in November 2004, the MABB, which is the media regulator for the Berlin and Brandenburg region of Germany, and which had recently begun hosting the first ever DVB-H trial, said in a press release that they had stopped issuing licenses for DAB stations; that DAB is based on 1980s technology; and they favoured carrying digital radio on DVB-H or DMB instead. The following February, Finland announced they would be switching off their DAB transmitter network, saying that they intended to investigate using DVB-H or DMB.

Then in July 2005, four out of five of the largest French radio broadcasters launched a vehement attack on the old DAB system, citing that the MP2 audio codec was outdated and inefficient; that it would be better to use AAC+; and again they favoured using DVB-H or DMB. They also said that they should learn from the mistakes made in the UK – which is rather embarrassing for us, but they were nevertheless absolutely spot-on.

If that wasn't bad enough, the Australian minister in charge of communications, Helen Coonan, said in October last year that it would be "irresponsible" to recommend that Australia should use a system that was as old as DAB is. After either the French or the Australian

attacks, WorldDAB finally capitulated to pressure, and the WorldDAB Technical Committee was asked – in secret – to look at adding the AAC+ codec to the DAB system in November last year. But the negative press continued, with both the Swedish and Dutch governments deciding to freeze plans for further roll-out of DAB, and the German commercial radio industry saying quite recently that "DAB should be modernised or switched off".

The saddest thing about the last three years has been that, despite the UK's implementation of DAB clearly showing that the system was not up to the job and use of the system would result in poor audio quality, the European public service broadcasters argued very strongly in favour of sticking with the old DAB system. For example, the EBU (European Broadcasting Union), which represents the European public service broadcasters, allowed numerous articles to be published in its influential 'Technical Review' that were heavily biased towards sticking with the old DAB system, including two articles comparing the DAB and DVB-H systems that both contained numerous theoretical errors; and by an amazing coincidence all of these errors favoured the DAB system. And the public service radio broadcasters from Norway, Denmark, Sweden and Germany also published reports and/or their employees were interviewed for press articles where a similarly biased representation was put forward.

The scariest thing is that they nearly got their way: before the French broadcasters attacked the DAB system – which only happened sixteen months ago – it was thoroughly expected that the old DAB system would be adopted right across Europe. *Vive la French broadcasters, I say!* ●

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## noel keyword

**T**here's a resurgence of interest in vinyl on many fronts, some peculiar even to a vinyl die-hard like me. A nearby HMV, their large flagship at the East End of Oxford Street, is now stocking racks of 7in singles, a long wall display of 12in, 45rpm singles, mainly Dance, and racks of LPs, including a reasonably well stocked selection of Classic Rock. The latter tell an interesting story, as much of what is in there comes as import from the USA.

For me, visiting this place is like being a child in a sweetshop. Do the Stones, whose early recordings were always dire, sound better when remastered to DSD? I don't know for sure, so there is only one way to find out, buy this one and - oh - that one and - er - just one more...

I'm sure you know the predicament. If you buy just one it may be the duffer of them all, so only an armful will do. This soon gets expensive; I staggered out with £150 worth of LPs the other Saturday - and that was after I missed the £80 Hendrix box set of remastered recordings, because I had equivocated about it a few days earlier. "He who hesitates is lost", the saying goes - and so it had gone! Luckily, it is available through online retailers like Diverse Vinyl and Stamford Audio, both of whom have a much more structured approach than HMV.

I like to peruse the 12in single racks at HMV for 'impulse buys', discs like The Dirty Funker Remixes of 'Whole Lotta Love', bought on a whim and enjoyed since, or Alison Goldfrapp's 12in Dance singles, again bought in handfuls! They are food to a pair of hungry Tannoys that devour them with relish, much to my neighbour's trepidation, but to my late night delight.

HMV's racks tell me vinyl is back

as a Dance, DJ, House, what have you medium. By far the largest slice of floor and demo area is devoted to these genres. By contrast, the Classic Rock rack is a mere 12ft or so long and the selection thereon is a somewhat arbitrary and fleeting collection of whatever titles HMV mysteriously choose to stock. So an £80 Hendrix box set sells but is not replaced - and the computer stock list makes no mention of it. It would seem that HMV have the space to stock vinyl in some depth in this flagship store, but it is aimed primarily at the music areas where sales are largest in volume terms only. However, over in the racks housing Classic Rock, it is at least cheering to see that the music that went out of favour so long ago has come back into fashion. How HMV can put one £80 Hendrix box set out and not replace it is a testament to their difficulty in identifying what will sell - and to whom.

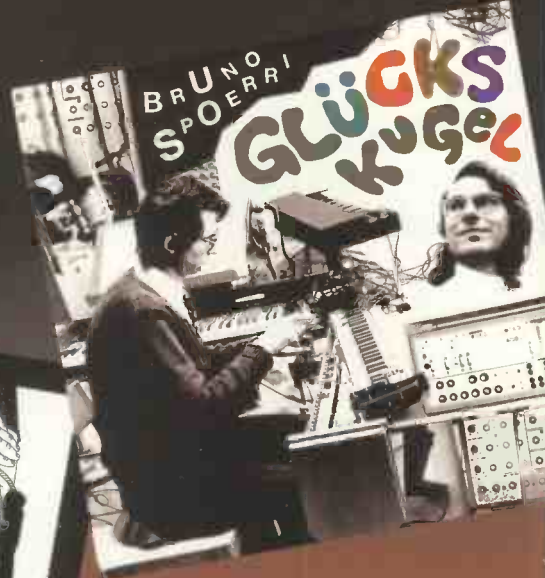
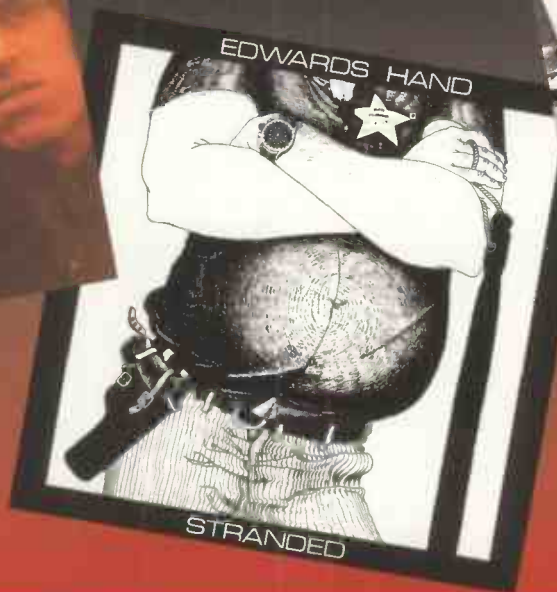
These racks tell another story though. As mentioned earlier, most classic Rock LPs are imports from the USA, priced at £16-£18, the sort of price HMV and the music business once hoped they could sell CD, then DVD for. They are re-releases of old classics, such as the Ramones, mostly on 180gm audiophile vinyl. Many carry informative labels about the remastering process. By and large, such albums are aimed at people of a certain age, such as myself. People who were there at the time, often saw the artists live, like the Ramones at the Electric Ballroom (yes!), and value a great piece of music history. It is often called nostalgia, but it isn't for me. I'm partial to music from the great annals of Rock for its own sake. I can spin 'The Kids Are Alright' one minute and 'Ride A White Horse' the next with equal enjoyment, like most music buyers I suspect.

So HMV's racks tell me that it is from America that a lot of audiophile vinyl is coming and this brings me to the next interesting phenomena that I'm currently puzzling over in this peculiar multi-faceted revival. Who invented the 45rpm LP?

I am no music expert and should be directing this question to Paul Rigby. But in the many decades I have been buying LPs I have never come across 45rpm LPs until recently. Having collected 12in, 45rpm singles since the early eighties I well know that a higher groove speed gives better sound quality, to the extent that it usually betters CD by a margin audible even to the man in the street. Has this become important?

If it has then this part of the vinyl revival is aimed at those who value sound quality. What a surprise! When quality is usually sneered at by the music business, are they finally coming to understand that it sells? Heavens, I am contemplating spending £180 on a few LPs soon, an amount well beyond what I would ever have considered sensible. Early Creedence Clearwater albums have been remastered and made available on super quality 45rpm LPs. I just cannot say no. To date, I have not regretted buying high quality re-releases like these.

The 45rpm LP is now a medium for modern recordings too. Scissor Sisters' latest release, 'Ta Dah', is available in this format, so this new fashion for high speed vinyl is being used by today's bands. It is the strangest and most unexpected development I can recall to hit audio - progress backwards, as it were. As CD sales decline in markets around the world it is remarkable that the LP should start to reappear at the very top end of the market as a high quality medium like this. Just where we always said it should be. ●



**EDWARDS HAND**  
*Edwards Hand*  
**EDWARDS HAND**  
*Stranded*  
**Lightning Tree**

Edwards Hand were Rod Edwards and Roger Hand who produced this perfect slice of pop-rock as their debut in 1969. It was produced by the 'fifth Beatle', the producer, George Martin. There's a real crossover of stylings in this album - from Fifth Dimension-type vocalisations to the more modern whimsy of the Lightning Seeds. 'Stranded' is the band's second album from 1970, complete with extra string arrangements and more production from George Martin. The album has a very West Coast feel to it. You can almost hear a bit of Grateful Dead, in their harmonic phase, in there mixed with a slice of Crosby, Stills & Nash. This is excellent meditative rock with pop sensibilities, until you get to 'Death Of A Man' which is an epic battle between orchestra and Moog. This reissue features the original banned cover art by Beatles' Artist Klaus Voorman.

The albums were mastered by Roger Wake who, "mastered the albums from a mixture of master tape (the debut, self-titled album) and vinyl (Stranded). The latter was mounted on a Thorens TD520 (which also handles 78s - which are also part of Wake's mastering requirements) with a SME 312 arm and a Shure 75EJ cartridge." Wake uses a digital chain because,

"I worked during the '60s. The best thing that ever happened to me was MOSFET microphones. I hated valves because they were so unreliable, they were a nightmare. Transistors were heaven, they were quieter too. I can appreciate valve's slightly extra warmth but I'm not a purist. However, I judge everything by my ears - always have done." So the signal moves out of the master tapes and Thorens to a 20bit converter and then the PC processor, Sadie, for cleaning up and declipping. The final production bears out Wake's claims and shows that, with careful application, good ears and experience, even digits can be vinyl friendly.

**BRUNO SPOERRI**  
*Glucks Kugel*  
**Finders Keepers**

If you're a fan of BBC Radio 6's 'Freak Zone' hosted by Stuart Maconie, then you'll love this album and you should buy it immediately. For the rest of you, Spoerri has many fans old and new. From Can's Irmin Schmidt, who actually worked with Spoerri to the more contemporary praise from the likes of techno maestro, Carl Craig, and the legendary 808 State's Graham Massey. Spoerri recorded all of the music in his own studio during the period from 1971-1980. Speaking from his home in Switzerland, Spoerri recalled that the masters for his works were not exactly high on his list of priorities, "I forgot about them, actually. One track, 'Drillin', was made for a company at an exhibition.

I forgot that I made an EP that was given away by the company at the exhibition. Suddenly, a friend of mine called me saying that it could be found on a new LP from a label called Jazzman. They never paid for it. This led another friend of mine to contact Finders Keepers who said my work was of interest, which concluded with this album. It was only then that I examined my old two-track masters recorded on old Revox G36 decks. They were just kept on a shelf somewhere."

Spoerri copied the lot into his computer to do some EQing. Many studios, including major labels, took the wrong decision to use Ampex tape during the '70s which proved a disaster when archiving as it later broke and flaked into pieces. Fortunately, Spoerri utilised BASF tapes as his masters so he never had those problems, "These tapes were thicker than other tapes which helped to improve sound quality and reduced print-through a lot." Essentially, this album is a compilation of Spoerri's work which includes music for engineering companies, motivational music for industrial sites and factories. The electronic style includes concrete techniques, primitive sampling and contemporary experimental psych-rock and funk. So, while one track delivers a fast looping bass, funky drumming and modular tones, others bring multi-tracked wordless vocals and synth warbling. Adventurous but always wonderful.



## ROSEMARY CLOONEY

### *With Love* Groovenote/Concord

One of the great singers of our age, Clooney is up there with the likes of Sinatra, Lee and Bennett as an interpretive singer of immense quality. Despite a stellar 'pop' career, her personal life was a mess by the late '60s with a failed marriage and love affair with Nelson Riddle that left her broken-hearted. Finally, in 1968, while campaigning for Robert Kennedy, Rosemary stood a only few feet from where he was assassinated. She suffered a nervous breakdown. Her comeback required intense dedication as she literally had to start a career all over again, taking humble gigs and relying on the help of old friends. In 1975, Bing Crosby invited her to tour with him and the combination led to the inception of a new career. The Concord label was instrumental in that comeback because it gave Clooney time and space to sing the songs she wanted - freedom that was lacking in her early years.

This particular edition has been mastered by Groovenote on to two slabs of vinyl and should be played at 45rpm, so you have two tracks per vinyl side which gives the grooves space to breath, the 180gm vinyl offers a deeper groove cut and the higher speed improves the soundstage and adds deeper bass. If you've never heard one before, the 45rpm vinyl album is definitely worth an audition. In the company of tenor saxophonist Scott Hamilton,

cornetist Warren Vache, guitarist Cal Collins, pianist Nat Pierce and guest vibraphonist Cal Tjader, Clooney created this album in 1981. As you may guess from the album's title this is a project that features many ballads including Billy Joel's 'Just the Way You Are', Hamlich and Bergman's 'The Way We Were', Rodgers and Hammerstein's 'Hello Young Lovers' and Gross & Lawrence's 'Tenderly'. Clooney is in excellent voice for this recording, the mastering is exceptional with deathly silences where expected and dynamic, sparkling music otherwise.

### WIRE *Chairs Missing, Pink Flag, 154* 4MWB

Wire were one of the first post-punk bands, and this excellent set of audiophile reissues, on 180gm vinyl and heavyweight sleeve packaging, covering the outfit's first three album releases, show how the band evolved from 1977-1979. 'Pink Flag', however, was both all punk and different from the movement at the same time. Each track is short and sweet at around 90 seconds apiece, while the music itself is craggy and abrasive. Tracks include 'Field Day For The Sundays', 'Feeling Called Love' and 'Different To Me'. This was a band in a hurry and 'Chairs Missing' was produced in the following year. The band had undergone an internal revolution. Some members of the media even said it sounded like early Pink Floyd. However, while it was exploratory

and used ambient themes, it was also minimal with many layers to keep it interesting. Tracks include 'I Feel Mysterious Today', 'Another The Letter and Outdoor Miner' almost became a hit, until a financial scandal at EMI stopped it dead.

'154' was different again. The layers remained but the melodies returned and the vocals showed how the band had matured over such a short time. Tracks included 'The 15th', 'A Touching Display' and the wonderfully named 'Map Ref. 41°N 93°W'. Superstardom beckoned but the band's relationship with EMI, collapsed and they took a five year break. However, since that time the band members have reported that their best ideas had all been used within those early three albums, so the break was not only sensible but also helped to retain credibility. The archive of this intensely creative period is retained within these excellent reissues from the label 4 Men With Beards. A US-based label which has recently produced some excellent product. This new 180gm set is no different and is highly recommended in that they offer the greatest transparency, least edge and most harmonic fulfilment. They also deliver the best imaging and three dimensionality of any other version I've heard out there.

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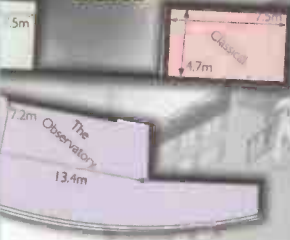
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# Designing Speakers



## Part 3: Bass Reflex

Continuing this series on designing your own speakers, Peter Comeau looks at the ups and downs of the bass reflex enclosure...

It won't have escaped most readers' notice that the majority of commercial speaker designs available on the market are vented boxes or what we call 'bass reflex' or 'ported' designs. This is our third class of enclosure and covers a multitude of concepts from bandpass to Transmission Lines, taking in a fair number of oddball ideas along the way.

### THE BASS REFLEX BOX

Let's deal with the positive aspects of the vented box first. Compared to the closed box the vented box has greater bass extension, superior power handling and lower distortion over the 'wanted' bandwidth, and a higher efficiency level. Sounds like it's got everything going for it!

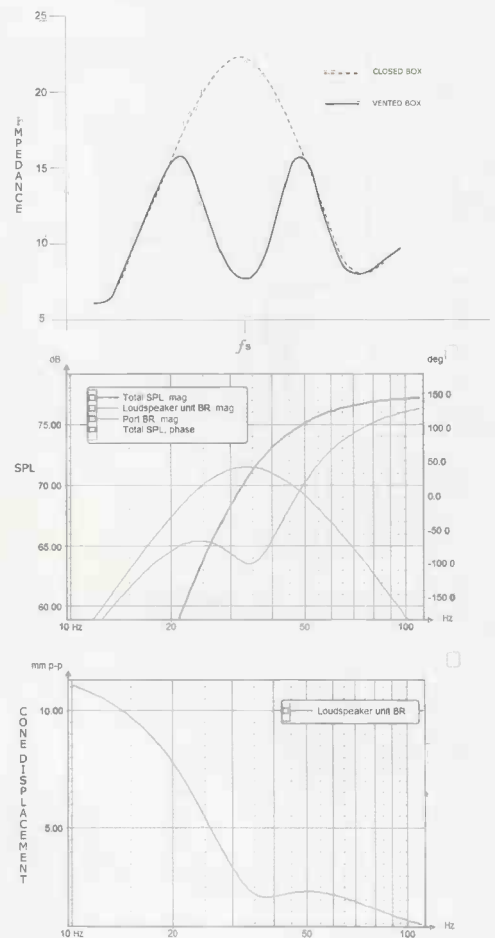
A vented, or Bass Reflex, box achieves these aspects because it reinforces the output of the bass unit by acting as a Helmholtz Resonator. The technique relies on allowing the port output to increase as the bass unit output falls in level. This happens automatically but the performance of the design relies on how the 'crossover' between the bass unit output and port output is managed.

Actually we can 'see' how efficiently the system is operating by looking at the drive unit impedance graph. If you compare this to the closed box system impedance characteristic we published last month you will see that instead of having one 'hump' that shows the resonant frequency of the system, we now have two humps.

Some viewers think the twin humps of a reflex cabinet show two resonances. Actually, there is still only one system resonance, the twin

humps are because we are using the drive unit to measure the impedance.

What actually happens here then? It's probably easiest to imagine the system as a closed box with a 'port' that takes over from the bass unit as a provider of bass output at the system resonance. What the bass unit sees is therefore as follows. If you follow the trace from 100Hz downwards the bass unit impedance starts to rise towards the system resonance, just as it would in a closed box. But then as the Helmholtz resonance starts to tune towards its optimum point the port output starts to take over from the drive unit output – so we see this as a fall in drive unit impedance. At the system Helmholtz resonance point all the bass output is coming from the port and virtually none from the bass unit. So as the bass unit isn't moving at this point its impedance is at a minimum, hence the 'trough' in the graph.



The top graph shows a large closed box system tuned to 34Hz (dotted) compared to a smaller bass reflex box with the same tuning. The graph shows the impedance of the drive unit which falls to a minimum at the system tuning frequency of the vented box.

As driver output falls the port output increases (middle graph) and the two combine to extend the bass response. Unfortunately driver cone excursion increases rapidly below the system tuning frequency (bottom graph).



A simple Helmholtz resonator is a bottle with a narrow neck. Blow across it and you push the mass of the air in the neck of the bottle in, whilst the springiness of the air in the bottle pops it out again setting up an oscillation. Substitute your breath for a drive unit and the bottle neck for a port and you have a bass reflex speaker.

## HELMHOLTZ RESONANCE

A Helmholtz resonator is a cavity containing gas with an open hole or port in it. An empty wine bottle is a good example. Blow across the mouth (port) of the bottle and you push on the mass of air in the neck of the bottle. This pushes down against the air in the bottle which compresses and increases the pressure inside the bottle. As this pressure is now greater than atmospheric pressure the air pushes back on the mass of air in the neck forcing it partially out of the bottle. This reduces the air pressure inside and the mass of air is 'sucked back in, setting up the oscillation. As you continue to blow you keep pushing this mass of air back in again and so continue the oscillation, thus producing a continuous note. The frequency of oscillation is determined by the spring constant  $k$  divided by the mass  $m$ .

In our case the spring constant is the volume of air inside the enclosure; the smaller the volume the springier the air and the higher the frequency. The mass is the mass of air restricted in the port; make the port longer and the mass increases so the resonant frequency goes down.

unit. So as the bass unit isn't moving at this point its impedance is at a minimum, hence the 'trough' in the graph. Moving lower in frequency the bass unit starts working again as the port output dies away so the impedance rises.

To cut a long story short, the 'trough' in the impedance graph marks the frequency of system resonance. If the crossover from drive unit to port is working at maximum efficiency then the system resonant 'trough' will bisect the drive unit impedance. We will see this

as equal 'humps' either side of the trough.

If one of the humps is bigger and broader than the other then the system is mis-tuned. This needn't be a bad thing. In some cases it can be better if the system is de-tuned. There's a fair amount of freedom for the designer here, so let's look at the pluses and minuses.

## BASS REFLEX TUNING

First of all a bass reflex system working at maximum efficiency can sometimes be heard as a 'one note

bass'. We should never forget that reflex boxes are acoustic resonators. As with any resonance if the system is relatively undamped then the oscillation continues after the energising impulse has passed. We hear this as a stronger bass output at the resonant frequency than at other frequencies – it sounds like everything in the bass is centred around that one note.

So we can either add extra damping, or de-tune the system, or both. Why ever would we want to de-tune the system? Well, for example, we can change the balance of bass unit output to port output. By de-tuning the system the port output falls compared to that of the bass unit but, unlike damping which ostensibly achieves the same thing, the  $Q$  of the system is less affected.

A more rational reason is because of what happens to the bass unit below resonance. Bass unit output starts to rise below resonance and, unlike a closed box, there is no restoring force from air pressure inside the box as the box is now 'leaky' through the port. Bass unit cone excursion increases rapidly as the frequency falls.

This is undesirable. It not only leads to the 'cone flapping' seen when playing a slightly warped record through the system but also allows the voice coil to move out of its linear region. Once the bass unit is working at a non-linear point in its travel then everything gets distorted – upper bass, midrange, the lot!

There are two ways round this. One is to add damping to the system by filling the port with, say, straws or open cell foam to provide resistance to the airflow. The other is to de-tune the resonance well below the point of optimum efficiency. You get two bonuses with this, one is that the system resonance falls in frequency and is audibly less objectionable (on the basis that any resonance can be heard as such).

The second is that cone displacement is less at frequencies within the audible bandwidth so that the bass unit is more likely to remain within its operational linearity. The downside, with both methods, is loss of efficiency but, as we pointed out last month, we can counter this in larger speakers with good bass extension by utilising room gain. All is not lost.

*Next month: Bandpass enclosures and Transmission Lines*

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# WD Series 3 Modular Pre-amplifier kit



**Our Series II modular kits were deservedly popular but we felt it was time for a complete update. Peter Comeau explains the thinking behind Series 3.**

**H**i-Fi World's modular pre-amplifier grew out of a desire to offer the highest performance, lowest noise phono and pre-amplifier designs to our readers. Noise was kept low by parcelling the functions up into three boxes – a dedicated, passive equalisation phono stage, a high gain pre-amplifier and a separate power supply unit to drive them both.

This approach proved very popular and the modular approach provides tremendous flexibility. For example those of you with line level input integrated amplifiers can just use the phono stage and PSU to provide the necessary preamplification for a vinyl source. But nothing is ever perfect and, after taking a long, hard look at the circuits, we decided it was time for an upgrade.

Chief contender was the pre-amplifier section. Why not just use a passive preamp? There are, of course, plenty of enthusiasts who are happy with their passive control units, and World Designs will be introducing such a unit later in this series. However there are some advantages to an active unit which might not be obvious at first sight.

An active preamp can do a better job of driving the 'load' for a start. What do we mean by this? A passive

volume control has a variable impedance which reacts with the load from the power amplifier so its behaviour is never quite as prescribed. If the load of the linking cables is taken into account then one can never be absolutely sure that the passive preamp is working at its best.

In addition there are those who prefer to place their power amp at a distance from the source, maybe close to the speakers for example. In that case what we need is a preamplifier that can drive long cables and not react to the increased capacitance of the reflected load.

World Designs valve amplifier designer, Andy Grove, decided to keep to the output transformer model for the Pre3 as the ideal way to achieve both high drive and low impedance capability independent of load. Next month we will let him describe exactly how this is done but for the moment suffice it to say that the preamp resembles a Single Ended low power amplifier. We will also show how the design achieves low hum and noise by breaking the traditional ground loop between pre-amplifier and power amplifier. But more of that next month.

We've also paid attention to signal transfer and low noise and hum inside the Pre3. In the Series II Pre the input switching was carried out by a front panel switch to which

each input socket was linked by its own cable. This created a wodge of cables running the whole length of the amplifier. Far better, we thought, to utilise the relay switching board we designed for the WD88VA integrated amplifier. This keeps the input switching directly at the phono sockets, routes the selected input straight to the tape output and volume control, and switches inputs using gold over silver plated precision contacts for optimum signal transfer.

Whilst the Pre3 receives a new circuit and other enhancements, Phono3 requires not so much work as a tidy up. We have instituted more accurate RIAA equalisation and refined a few components for better signal transfer. The most obvious upgrade was in the Moving Coil input section where the original transformers were good but not necessarily the best we could do. A rethink of the windings and impedances, plus careful selection of the core and method of manufacture, revealed a transformer that is now streets ahead of any active boost circuit with, not only negligible noise, but a transfer characteristic and bandwidth that ensures the highest clarity and detailing from MC cartridges.

*There's more, much more, but it is best covered in detail in the forthcoming instalments. Don't miss next month's issue.*

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# AWARDS 2006

Welcome to Hi-Fi World's ten-page Awards special, where you'll find our favourite products reviewed over the past twelve months. Competition was tough, but we're delighted to bring you what, in our opinion, are the year's best offerings in specialist separates hi-fi...



#### AWARDS 2006:

**TURNTABLE:**  
**TONEARM:**  
**PHONO STAGE:**  
**CD PLAYER:**  
**INTEGRATED:**  
**PREAMPLIFIER:**  
**POWER AMPLIFIER:**  
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**TUNER:**

#### THE WINNERS

**FUNK FIRM VECTOR**  
**CARTRIDGE MAN CONDUCTOR**  
**EASTERN ELECTRIC MINIMAX PHONO**  
**CHORD BLU/DAC64**  
**REGA BRIO**  
**MF AUDIO PASSIVE SILVER**  
**MCINTOSH MC275**  
**B&W 801D**  
**MYRYAD MXT2000**



## TURNTABLE WINNER: FUNK FIRM VECTOR £760

This past year was a remarkable year for vinyl – to the best of our knowledge, there were more analogue disc spinners launched than CD players, and the market – it seemed – just couldn't get enough of them. The humble old LP record – now nearly sixty years old – has undergone something of a rebirth in audiophile circles, and high quality turntable sales reflect this.

All well and good, but the trouble with turntables – well, modern ones at least – is that they are all belt drive. This is a fine, inexpensive system that gives very good results, but it is not without its problems. Unfortunately, seventies British audiophile thinking did not take this view...

Conventional wisdom, back in the days when the Linn was king, was that direct drives were potentially noisier and speed-unstable, as their servos systems meant they were always hunting for the right speed. What this ignored is that belt drives suffer speed instability problems too, and this manifests itself in a potentially more sonically undesirable way.

The point is, if you have a motor

spindle spinning around at speed on one hand and a big heavy platter on the other, the path of least resistance will be the long stretchy rubber belt linking the two. If the platter slows down, due to increased resistance thrown up by the stylus in a heavily modulated groove, what will slow down? The motor spindle will keep spinning at a constant speed, and the belt will stretch slightly, like a clutch decoupling an engine from a gearbox. Worse still, the belt may ride up and down the turntable's inner platter, further worsening speed stability.

The reason the Funk Firm Vector gets this year's turntable award is that its design – unlike every other new release this past year – addresses this very weakness. It doesn't get round it completely, but it's still an ingenious way around belt drive's 'stretchy belt syndrome'. Vector Drive is the name that its designer Arthur Khoubesserian has coined to describe its unique selling point.

The £760 Funk Vector has three asymmetrically aligned pulleys for its one belt; one is actively connected to the DC motor, and two are passive. In the words of AK the, "Vector's triple pulley support arrangement

frees the platter from the need to self-correct and it now rotates uniformly, reducing demands on the motor so that current varies less. We can return to the idea of gyroscopic motion and pitch resolution is noticeably enhanced. Three pulleys are the minimum to achieve stability, for by contrast, a motor and one passive pulley only balances along a straight-line direction leaving the platter free to "rattle" side to side. Vector's asymmetric geometry is the result of having one motor driving with two passive anchors".

The rest of the deck uses thinking that now seems conventional but, were it not for Arthur Khoubesserian's earlier forays into turntable design, would be radical even now. This includes an acrylic sub-platter, a DC motor and a bearing mechanism sited within an oil bath to keep it continuously lubricated and damped. The Funk Vector is a deceptively simple yet technologically interesting turntable comprising clever lateral thinking, grounded in science. It's a genuinely intelligent and innovative attempt to produce the best sounding turntable at the price, and it works.



## RUNNER UP: VPI SCOUT (£1,295 WITH 9" JMW TONEARM)

The entry-level deck in VPI's eight-strong range, the Scout boasts an extremely well constructed main chassis and drive system, plus a simplified version of the JMW Memorial unipivot tonearm. With a massive, solid and focused soundstage, superb transients and excellent musicality, this turntable is exemplary at the price.



## TONARM

### WINNER: CARTRIDGE MAN CONDUCTOR £1,500

If there's one thing more fiddly than a parallel tracking tonearm, it's an air beam. And if there's one thing fiddlier than an air beam, it's an air beam made by a small specialist UK manufacturer that uses a chaotic mix of beautifully hewn bits of metal and shoddy, second-rate ancillaries. The problem is that, despite its myriad failings, the Cartridge Man Conductor is one of the very best sounding pickup arms ever made, and all its foibles are forgiven at the mention of its comically low asking price.

Rarely have we encountered something that has elicited such mixed feelings. During its tenure in editor DP's system, it spent much of its time not working. There was also an intermittent loss of signal due to poorly designed, cheap and shoddy phono sockets, and a periodic 'freezing' of the arm's progress across the disc, as the rubber tubing supplying the air feed fell off! Then there was the nightmare of a noisy pump, one which is better suited to indoor fish tanks than audiophile applications...

In the best traditions of Britain's finest inventions however, these are

all trivial detail niggles, which fail to stop the utter brilliance of the original design shining through. Mr. Len Gregory, all is forgiven, because the music that this extracted from the record grooves is sublime. Furthermore, we have been assured that the 'hiccoughs' encountered on the very early production sample we reviewed have been addressed, and that the Conductor is now more robust. Given this caveat, and its aforesaid sublime sonics, this arm has to be the standout vinyl product of 2006.

One of the most pleasing experiences known to vinyl junkies is surely hand cueing the stylus into the lead-in groove. With a perfectly made gimballed tonearm, the silken action of the arm tube against the bearings is all the more memorable – SME Series V owners know this well. This is not something that is available to owners of a parallel tracker; there's none of that lovely tactility, and the addition of an air bearing with its concomitant hissing makes this part of the 'black art' of vinyl replay even less pleasing.

However, as soon as you drop

the needle into the groove via a Conductor, things take a distinct turn for the positive. Parallel tracking tonearms, done properly, do things which no conventional pick up can. There is an assuredness, a sense of effortless ease, a feeling of master tape-like stability, which you simply don't get from tangential trackers.

Better still, the soundstaging is quite breathtaking – analogue can be sublime in this respect, and this is at its most pronounced with an arm like this. It is the closest thing you'll come to real surround sound, without seventeen speakers and a digital processing box. Images are massive, boldly articulated and locked so precisely in space that you couldn't get a cigarette paper between two singers sharing a single microphone.

Given that air is frictionless, the cartridge is allowed to waft across the disc entirely at the behest of the groove, and the result is a totally unsullied, natural sound that makes any track you try, fly. This is – in theory – surely the best way to track a cartridge – and the Conductor shows that, minor gripes aside, it sounds that way in practice too.

### RUNNER UP: ORIGIN LIVE SILVER £599

Despite the price staying the same for the past five years, the OL Silver is now, to all intents and purposes a 'new' product. The golden egg that outgrew the goose (i.e. the Rega RB250 that begat it), it's now an altogether more beautiful thing. Almost everything is different, from headshell to arm tube to counterweight, the only blast from the past being the armrest. Sound is different too – wonderfully open and dimensional for a pivoted arm at any price, it's a veritable steal of a deal.





## PHONOSTAGE

### WINNER: EASTERN ELECTRIC MINIMAX PHONO £1,099

Anyone who's heard what analogue vinyl can do when its signal doesn't so much as tickle a transistor en route to the loudspeakers knows it's the way to go. There's an eerie 'out of this world' quality to its effortless musicality, a total lack of brittleness and a sense that it was always meant to be this way... As far as the electronics are concerned, the start point is the phono stage.

As such, here at *Hi-Fi World* we've been saying there's nothing like a decent valve phono stage for years. Unfortunately for us all, there has been nothing like a decent valve phono stage for years – not since the early nineties Audio Innovations P2 designed by Guy Sargeant, in fact.

True, we've had a range of exceptional solid-state designs of late, from Whest Audio's PS.20/MSU.20 to Trichord's Diablo, but – despite the pontifications of this august journal, there was an uneasy time when the only tube choice around was the

EAR834P. Although good in its way, if you like a soft, seductive and woolly sound, it's a tad off the pace in many ways – and the strength of the new wave of solid-staters only served to underline this fact..

Then, just like London buses, all of a sudden we're covering under the weight of hundreds of the darned things! In the past few months, *Hi-Fi World* towers has filled up with little boxes of bottles, promising to do wonderful things with the microvolts emanating from your pickup cartridge. The Eastern Electric Minimax Phono is the only tubular belle that qualifies for the 2006 gong (expect to read about many more in the coming months), and it's a worthy winner.

Eastern Electric's Alex Yeung has engineered the Minimax superbly, with high output MM cartridges feeding directly into the first valve, whilst low output MCs feed the primary of a step-up transformer. In the Minimax design the primary is tapped to provide

a lower input impedance and higher step-up ratio for low output MCs. Quality issues then centre around the valve (tube) used and – especially – transformer quality. Eastern Electric use two large, well screened units with Permalloy cores. The Minimax circuit is simple and elegant, and the unit is compact, well built and nicely finished.

Sonically, it is almost beyond criticism at the price. Superbly engineered, it offers beautiful results from LP. With a high quality moving coil cartridge, there are many here who wouldn't use anything less, because tubes (done properly) in a phono stage are special, as this proves. The Minimax Phono has wonderful texturality and an expansive palette of tonal colours, which come allied to a seductively rhythmic spirit and wonderful air and space. The result is big, bouncy and beguiling in equal measure. £1,099 is a lot of money for a phono stage, but the Eastern Electric is worth every penny.



### RUNNER UP:

#### CLEARAUDIO SYMPHONO+ £809

Less is more, in the case of this dinky diamond. Round the back, a pair of balanced outs will keep the high end brigade happy, and power is supplied by an external unit attached by a long line, to ensure hum doesn't intrude. Cue an LP and the fireworks start, this unit providing remarkable insight into any recording you care to throw at it. It's a true high resolution phono stage with a tight, grippy and engagingly musical sound, and moves the game on for sub-£1,000 phono stages.



## CD PLAYER:

**WINNER: CHORD BLU/DAC64 £6,190**

Don't be fooled by the styling - the Chord Electronics BLU/DAC64 combination is most emphatically not style over substance. The fact that it's one of the most exquisite audio artefacts since Linn's seminal CD12 is merely coincidental. It's a pleasant one admittedly, and all credit to Chord's designers, who have put in real effort to think - quite literally in this case - 'out of the box'. But to dismiss this combo as another piece of high end 'bling', is to dismiss one of the best CD players yet made.

Although the £4,195 Chord BLU transport does not have a bespoke mechanism like the £9,000 Esoteric X-01, it deploys a Phillips PRO 2 mech brilliantly. This one of the best from the Philips stable, and sure beats the countless ROM drives used willy-nilly in modern high end machines. This gives the DAC64 an exceptionally good start in life. There are better transports available, but you'll have to pay a lot more, and the BLU does the job with real panache.

Although the BLU is a lovely thing to look at and listen to, the truly

exceptional one in this marriage is the £1,995 DAC64. Far more than just a standard Crystal, Wolfson or Burr Brown DAC/filter-on-a-board, reheated with fancy power supplies and/or analogue output stage, the DAC64 sounds like nothing else around thanks to its 64bit VTA filter, along with the Pulse Array DAC and re-programmable Xilinx EPROM chips. This was designed by none other than ex-DPA (Deltec Precision Audio) designer Robert Watts, and it's his Watts Transient Aligned filter that makes for a sound that's quite unlike any other CD spinner..

Our measurements showed a gentle roll-off up top, which is an old trick used by CD player makers to alleviate the shrillness that digital can bring, and give a sense of warmth. Nothing special here then, but look beyond the spectrum plot and engage your ears and, although a little less vivid in the high frequencies than some flatter-measuring machines, the DAC64 is exceptionally musical. More than this, it actually sounds organic - like a magical half-way house between digital and analogue where it has neither

format's drawbacks.

There's real stage depth, a wonderfully fluid bass, beautifully textured vocals, accurate image location, an insightful and organic sounding midband and a crisp, sweet treble. It's not quite up to high end vinyl, but it really isn't far off - as often as not, you'd be forgiven for thinking it was a live performance you'd just set ears upon. Perhaps not the most incisive or 'detailed' sounding CD player, this the latest update of the Chord combo is surely the most musical on sale right now.

We at *Hi-Fi World* have been dispirited by some so-called high end designs, even more expensive than this yet using far more prosaic technology, invariably off-the-shelf from some indistinguished OEM. The Chord Electronics BLU/DAC64 is the antithesis of such lazy thinking, and although very expensive justifies its price by genuinely innovative technology and cost-no-object engineering. Don't be put off by the gorgeous looks, this is a massively focused music-maker, and the worthy winner of our 2006 Award.

### RUNNER UP:

**EASTERN ELECTRIC MINIMAX CD £879**

Something of an unexpected surprise, Eastern Electric has launched a welter of very impressive tube-based separates over the past year. Suddenly, what used to be the stigma of Chinese design and build has been laid to rest, as the company has brought out products to worry even the best of British. The Minimax CD is perhaps the company's strongest product, a superbly smooth, dimensional and naturally musical silver disc spinner at a sensible price. From the decent Philips CD12 mech to the fine build and tube output stage, this player has been engineered properly - and it sounds like it too.





## INTEGRATED AMPLIFIER

### REGA BRIO 3 £328

It is very nice to be able to award this year's best amplifier accolade to a product that costs less than the amount many *Hi-Fi World* readers will spend on one metre of audiophile interconnect. Rega's Brio 3 integrated is just this; a £328 box that puts out a modest 49W (into 8 Ohms), has a small sprinkling of facilities and minimalist, clean industrial design courtesy of Rega's Colin Dillaway.

For a brand associated by many with the 'Flat Earth' eighties – a time notorious for its lean, thin sound – it may surprise some to hear that the Brio 3 is one of the most 'valve' sounding transistor amplifiers around, in its own peculiar way. Look behind the marque to the name of the designer, Terry Bateman, and you may not be so surprised. In his own words, "this is to be expected from an amplifier designed by a guy who had a Quad II/22 system and Leak TL12+ at the age of thirteen in 1973"!

Unlike its Chinese-sourced Cambridge Audio rivals, the Rega is not dripping with aluminium. It

feels a little plasticky by comparison, but in the good old 'Flat Earth' days this would be taken as a sign that the money's been spent where it matters – inside, and so it has. The latest Brio builds on the previous model, sporting a larger 170VA rated toroidal transformer, with upgraded power supplies. It uses an Alps volume potentiometer and its internal line/preamplifier philosophy and component choice is refreshingly simple in its description as being, "no nonsense, with a high quality, no compromise circuit with no electrolytics, only polyester caps in the signal path."

What won the Brio 3 its original rave review was its performance in the context of a budget system, but editor DP first auditioned it with the notoriously unforgiving Yamaha NS1000M loudspeakers (one single tweeter of which costs most than the Brio). He was more than a little surprised that the anticipated shrill, toothache inducing din never happened. Instead, the Brio 3 sounded

warm, fulsome and bouncy from the get-go. Even from cold, through tricky speakers, the Brio 3 was expansive, big-hearted and rich in a manner utterly unexpected from such a budget design.

The downside of the Brio is its focus – or lack thereof. Amusingly, this is spookily similar to the sort of presentation you get from the original Quad II tube power amplifier. This was never big on detail or subtlety, but was a rollickingly musical listen. The Rega Brio does this too – everything you put into it sounds fun – pure, simple, unadulterated and uncomplicated. It is coloured and vague in absolute terms, and even by the standards of some better-priced rivals too, but you soon decide which amp you'd rather live with...

Best wishes then to Rega Research and all who sail upon her – it's a truly charismatic product that should be the instant choice of those wanting a little light relief from the grey, dour incision of so many other budget and mid-price integrations.



### RUNNER UP: VINCENT SV-236 £999

And now for something completely different... How's this for quirky: a curiously styled, German designed, Chinese manufactured, full Class A transistor amplifier running two triode valves as preamplifiers (and one as a styling feature!), with ability to switch into Class AB when asked to serve up more than 10W? This is an extremely interesting bit of kit, with an exceptionally incisive and open midband and real grunt when needed. A truly worthy first product.





## PREAMPLIFIER

### WINNER: MF AUDIO PASSIVE PREAMP SILVER £2,750

Surely one of hi-fi's greatest mysteries, the enigma of the preamplifier comes not from the romance of the thing (to be frank, 'a piece of wire with gain' is not as sexy as, say, a massive high end loudspeaker...) but from the fact that there are so few good ones around. It never ceases to amaze us that electronics manufacturers who make fine power amplifiers always manage to get things wrong when doing a preamp. Quad is but one example; the 909 is a lovely affordable audiophile power amp, the matching 99 Pre an effective tool for stripping all semblance of music from whatever signal is routed through it.

Regular readers will know of our love for the Music First Audio Passive Preamplifier. Although not big, sexy or packed with leading-edge technology, it uses a clever transformer-based magnetic volume control featuring two attenuating transformers and Swiss made ELMA switches, point-to-point hand wired inside an aluminum case. It changes output level via passive control in multiple steps to control the volume of the line level input signal.

So, what distinguishes it from the fray is precisely the fact that it's transformer-based, in a world of preamps using resistive attenuation.

Additionally, most preamplifiers use active electronics to 'amplify' the signal. Conventional passives are simply resistive networks selected with a switch, or rotary variable resistors (i.e. a potentiometer). The problem with this type of device, asserts MF Audio, is substantial mismatches of impedance either at the source or the load, coupled with a perceived loss of dynamics, which is a very real consideration.

By contrast, MF Audio's Passive Magnetic Preamplifier instead uses custom-made, hand-wound transformers said to feature the largest commercially available 80% nickel Permalloy core for maximum level handling and low distortion, plus a heavy duty Mumetal shielding can for protection from external magnetic fields. The Silver version adds, as you might expect, silver coated copper core wire windings instead of the standard copper. All internal connections use 0.6mm silver coated solid core copper wire with PTFE insulation, hand wired. The best Neutrik and Deltron connectors, and Swiss made ELMA silver contact rotary switches, are employed.

To some ears (and/or in some systems), it sounds dramatically better than even the superb standard

copper version, and to others it just sounds different. The debate's still out on silver vs. copper wiring; neither are absolutely better than the other, although silver is more expensive. Although not always the case, copper can sound mushy and brash in audiophile applications, whereas silver is always cleaner and smoother but has a slightly hazy, romantic quality.

This characterises the differences between the two MF Audio preamplifiers; the silver is certainly cleaner and crisper, making it one of the most revealing preamplifiers yet made. It has disarming spatial prowess; instruments and vocals project with breathtaking ease from the recorded acoustic, and sit locked in place in space with a feeling of utter immutability. There's no sense of music struggling to get out of a box; suddenly it's right up there in front of you with tremendous authority and confidence.

The new MF Audio Passive Preamplifier Silver is not as good value for money as its original copper variant at half the price, but to many ears the performance differential *might* justify the premium. By any standards, it is one of the most neutral and open preamplifiers yet made, and this is reason enough for it winning this *Hi-Fi World Award*.



### RUNNER UP: CROFT VITA £990

As fans of Glen Croft know all too well, his products are charismatic, quirky, flawed yet brilliant in their way. The Vita is no exception – an all valve preamplifier complete with tube phonostage for under £1,000 is superb value, and the sound is no less impressive. That phonostage makes your average £500 transistor box sound very mediocre, and the preamp section is beautifully big, warm and musical too. Only the teeniest bit of noise detracts from a great value package.



## POWER AMPLIFIER

### WINNER: MCINTOSH MC275 £2,650

The trouble with tubes is that, whilst they may be capable of fantastic – superlative, even – results when properly implemented, this rarely seems to happen. Most valve power amplifiers are designed with cost (or lack thereof) as the number one priority, and it's here that the invisible bits (i.e. the output transformers) end up the object of the accountant's evil eye... Output trannies are easy to source cheaply, but hard to do well, with the result that an otherwise perfectly good amplifier ends up weak kneed and wobbly sounding. You can count on one hand the number of companies that do decent trannies - but McIntosh is one of them.

Despite the gorgeous retro looks, this amplifier is no mere styling exercise, but the fourth update of a classic McIntosh originally launched in 1961. Still, it shares about as much in common with that first design as the new Lamborghini Muira does with the original sixties supercar. Unlike the earlier Commemorative version released in the nineties, this one doesn't aim to mimic the original. It has a circuit board instead of hard wiring,

and employs good quality modern components. There are solid-state rectifiers in the power supply, instead of bulky valves, but McIntosh use a choke, thankfully.

Although McIntosh's unique output stage was patented in 1949, it is very modern in topology and design aims. It wrings maximum power from a valve, as well as minimum distortion through the application of feedback. So this is no golden oldie, like the many single-ended triode (SETs) designs floating around, nor is it a conventional post-war topology like the Quads. McIntosh came up with a revolutionary circuit, but it relies on complex output transformers of dump truck proportions that must be expensive to make.

The result is that the MC275 generates massive amounts of power from just four KT88s, so it drives them heavily, mostly in Class B with feedback keeping distortion in check, which is a very modern way of doing things. The highly linear KT88s respond wonderfully to all this: there is no sign of crossover distortion as KT88s give a beautifully clean sound when run

properly. With massive power of 90W and a good damping factor, loudspeaker matching isn't an issue. The McIntosh 275 delivers full power right up to 20kHz and right down to 40Hz, with absolutely no trouble at all. It sails past other valve amps here.

The McIntosh is hard etched in delivery compared to fluffier sounding tube products. But that also makes it sound faster and more incisive, with fantastic grip on timing. Transients are lightning-fast yet have power. Still, you know you are listening to valves here; the 275 has that magic something, that purity and liquidity, that sheer body that solid-state just fails to establish. It also has sledgehammer power, to a degree that will have Rock lovers begging for more.

What is so special about McIntosh's MC275 is that it overcomes all the traditional reservations people have with valves at a stroke. Boy, does the MC275 go for the jugular when it comes to fun! It's undoubtedly the valve amplifier for all seasons. If you'd like to hear what valves can do, but are scared of the cost and drawbacks, this is the one to choose.



### RUNNER UP: QUAD II-40 £3,250pr

In any other year, this exquisite monobloc power amplifier would be an instant winner; indeed, the McIntosh isn't so much better as different, and many will prefer the superb new Quad II-40. Don't let the name fool you – these have nothing in common with the wheezy old classic of (almost) the same name. These KT88-based beasts are reasonably gutsy and very transparent modern amplifiers in the best sense; three dimensional, musically lucid like few others and able to drive (most) real speakers, they're a dreamboat for glass audio aficionados.



## LOUDSPEAKERS

**WINNER: B&W 801D £10,500**

The B&W 801D is not perfect - no speaker is - but the reason it gets this year's best loudspeaker gong is sheer force of personality. There are speakers at half the price that do some things better than the big B, but sensible, rational, logical criticisms all seem to be thrown aside when you listen to them - they are absolutely fabulous.

Put crudely, the reason they're such a riotous listen is their size. Now, size can be dangerous. When you have a bigger box, there is more to go wrong. Any cost cutting in the cabinet construction is amplified one hundred fold, and the result is a boxy boom that effectively rules it out as a serious hi-fi transducer. For this reason, the vast 1192x506x682mm, 118kg 801D 'Matrix' cabs are faultlessly constructed. This in itself - if you pardon the pun - is no small feat.

Next, when you've got the cabinets right, you have to put serious drive

units inside. Not for the B&W's flagship monitor a brace of small diameter cones working in tandem with one another, in a bid to keep the front baffle narrow, to appease the modern (allegedly) style conscious buyer. If you're going to do a job, you have to do it right, which in hi-fi applications means large diameter drivers to move large amounts of air. At flare flapping volumes, its 380mm Rohacell cone bass driver is barely moving, and showing absolutely no signs of strain whatsoever. You get massive, barrel-chested bass, yet it's never boomy, and takes even the most heart-stopping transients completely in its stride.

Assuming you've managed to mate a PA-sized woofer to the cab, next you have to match it up with the other drivers successfully. Again, B&W have done the right thing. The 150mm woven Kevlar midrange driver is light, well profiled and ultra fast. It marries

almost seamlessly to that big bass unit, and crosses over to B&W's superb new 25mm diamond dome tweeter no less well.

Of course, three fine drive units and a big box does not a great speaker make - the 801D is so special is because it's a brilliant musical instrument. They conjure up a beautiful sound from bottom to top, with massive bass presence, 'hear through' midband and a silky, finessed treble. Yet they manage to gel this all together in an incredibly musical way, thanks to brilliant attack transients and wonderful dynamic prowess.

Don't let B&W's 'studio monitor' associations put you off - these aren't dispassionate, analytical tools, but rather they make music like almost no other box we've heard. Truly musically committed, they make almost every other hi-fi loudspeaker sound limp, lame and lackadaisical.



### RUNNER UP: MONITOR AUDIO GS60 £2,000

Fans of good old fashioned rock music need look no further than this new high end Monitor Audio floorstander. The old GR60 was big, bad and tremendous fun, and the GS60 adds a dash of extra detail, sophistication and depth - plus an ever-so-slightly brighter, more challenging sound. Attitude with finesse; superb.



## TUNER WINNER: MYRYAD MXT2000 £800

In a world where Digital Radio is dramatically in the ascendant, why does this year's tuner award go to a distinctly 'old skool' FM/AM design? Well, this is a hi-fi magazine, and we here at Hi-Fi World are not of the opinion that DAB currently constitutes high fidelity music reproduction. Until the risible MP2 codec used to transmit music digitally changes in a few years, our eyes and ears stay with analogue...

The Myriad MXT2000 is the latest in a line of superb sounding tuners from this enigmatic British manufacturer. At £800, it's a lot to pay, but short of Magnum Dynalab designs at four times the price, you're going to struggle to better it. The good news is that it's not some piece of wacky, left-of-centre weirdness. There's something of a tradition in the wonderful world of wireless that for a high end tuner to be truly great, it has to be hard-to-use to the point of being a pain. Not so the MXT2000, which is a superb, state of the art modern design.

Nor is it thrown together in a

shed. Myriad is not a cottage-industry manufacturer, and builds its products beautifully. It has a tall silver front-panel with a curved taper at the top and bottom and an attractive single-line royal blue text on black background display at its centre. The display also contains backlit red text indicators for stereo, RDS, tuning and the frequency band you're tuned to, and the silver-coloured metal strip inset at the top of the display is actually the on/off 'button', which is touch-sensitive rather than needing to be pressed, for a true air of sophistication. The faces of the buttons on the front panel and the rotary tuning dial are all flush with the surface of the tuner, and the tuning dial has a finger hole in it to allow quick rotation.

Truly a tactile treat, the Myriad feels beautiful to use and to look at, but the real joy is in the listening. It is a true star with classical music – especially BBC Radio 3 live broadcasts – where it sounds beautifully realistic, and obviously less 'electronic' than similarly priced rival designs. Its

soundstaging is positively cavernous, given the right programme material and it is never less than open and superbly defined across the midband. This tuner's highly detailed sound and open soundstage also hugely benefit rock, pop and middle-of-the-road music stations too. Live speech was uncannily organic sounding, with a lack of 'spitch' and sibilance; the delivery of presenters' voices is never less than pin-sharp and natural.

Eight hundred pounds is a lot of money to lavish on a format that some believe does not have much life left in it, but analogue radio is likely to be around longer than many think, and possibly even longer than DAB as it is presently constituted! So, while analogue lives, it continues to offer far superior sound to any of the digital replacements on the menu. The tragedy is that most analogue tuners aren't good enough to spotlight the difference, but the Myriad MXT2000 most definitely is – more so than almost any other tuner on sale – which is why it's a worthy recipient of *Hi-Fi World's Best Tuner 2006 Award*.



### RUNNER UP: MARANTZ ST7001

At under £300, this budget tuner does so much for so little. A high performance quad-band digital and analogue tuner, covering all the broadcast radio bands currently in use, the ST7001 uses high quality circuitry and passive componentry to give excellent results on DAB and FM at the price, better than some similarly priced designs famous for their audiophile prowess. It comes packed with features, has excellent connectivity, and is built really nicely at the price. A worthy runner up.

# mail

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## Letter of the Month

### RELICS

I have arrived at my current audio systems after many, many years of buying new and second-hand equipment, mainly by following advice in your magazine, (sometimes even risking eBay, I guess I've been fairly lucky here?).

My current main system comprises Naim NAC 72 and NAP 140 amplification, with a Hi-Cap power supply for the NAC 72, all bought second-hand with a Linn LP12 turntable as the main source component. I've an Aurex PCX 44AD tape deck (purchased for £14 via eBay) for recording tapes for my in-car Nakamichi cassette radio. The LP12 carries an SME Series III arm fitted with a Shure M97xE cartridge. The LP12 is driven by an Armageddon power supply. Speakers are B&W DM 601 S2s.

My second system comprises Creek 4140 amp, T40 tuner, Marantz CD63 Mk 2 Kl signature CD player; analogue source is a Rega Planar 25 fitted with an Origin Live modified RB300 arm carrying a Goldring G1042 cartridge and home made Acrylic 25mm thick platter. Speakers in my second system are cheap and cheerful JPW Millennium 310s; soon to be modified following Peter Comeau's excellent articles in your recent editions of the mag. and his superb personal help via the World Designs forum.

Whilst generally satisfied with both systems, I've got the upgrade bug bad and was wondering what you would recommend for my main Linn-Naim system in particular. I'm tempted with two options mainly regarding the analogue source:

Seeing that the SME III is a very nice low mass arm and therefore suits high compliance MM cartridges best, how about my investing in a Music Maker 3 cartridge? I guess this would bring a significant but costly improvement? Alternatively, with some reluctance, sell the SME and go for Origin Live's new Silver arm or Michell's TecnoArm a. Two very closely matched



### SME III arm - gone and forgotten?

arms I guess, with the TecnoArm winning on cost alone? As both of these options are fairly costly and my current in-amp phono stage is Naim's 322 moving magnet boards, I'm inclined to save up and go for the 1st option. I'm keen to hear your thoughts.

Additionally, I guess an upgrade to my speakers in my main system at a later stage would be of benefit? What do you suggest I consider, bearing in mind I would wish to remain with standmounters? I've a hankering toward PMC's DB1+s, Castle's Richmond 3 Is or Revolver R33s. What do you think?

**John Ruggles**

I am a bit baffled by this John. Your OL modified RB300 with Goldring 1042 should give the SME III and M97xE a run for the money. If it doesn't then perhaps the 1042 stylus needs replacing.

I had a couple of SME III arms for review purposes long ago and found them nice, but very polite in sound quality. Then along came Rega with the RB300 and, all of a sudden, the

one-piece rigid arm idea had a physical exponent and we could all hear the difference. SME then brought out their own one-piece arms, as the IV and V. When I visited SME some time ago I noticed that the ultra low effective mass SME III model was absent from their museum. I was told later that this was deliberate; the company all but deny making it. Ultra low effective mass wasn't a good idea at all, as rigidity was compromised. And since final gross effective mass was as much determined by the cartridge, arm mass in isolation was misleading, except as an indirect guide to floppiness! So your SME III is a great museum piece, but not really up to a tweaked RB300 I would have thought. And as for the Shure M97xE, this is a respectable old banger that a 1042 should embarrass. So swapping turntables around would help, as might a good external phono stage, like the Lehmann Black Cube or excellent Aqvox C2. Standmounting loudspeakers are not so popular today. A pair of KEF iQ3s are very good value, and KEF's Q Series are an exciting listening. I enjoy them. **NK**

Agreed - the SME III is nothing special sonically. It's a nice artefact, but it is very soft and fluffy and way off the pace by today's standards. Given that you might like its super smooth, languid nature, then why not go for a Roksan Nima unipivot tonearm (£350)? This is a really capable modern design that has a more liquid sound than the Rega derivatives and yet loads of incision and grip (something that is conspicuous by its absence in the SME III), if not quite as much as a TecnoArm. This leaves you £250 towards either a £375 Cirkus upgrade (which would negate the need to buy a new armboard) or a £130 Goldring 1042 (which is streets ahead of the M97xE). I know that many people really rate the Music Maker, but it just didn't do it for me in my system when I lived with it earlier this year - the Ortofon Rondo Bronze (£500) is so much more finessed, detailed and insightful.

You might like the Leema Xen standmounters on the end of your Naim pre-power - they have a very 'broadcast monitor' sound yet are far better than relics like Spendor's S3/5a, for example. **DP**

### BEST OF BOTH

*I'm sure you get millions of letters asking this type of question, but as I live in Cornwall I want to be clear on what type of amplifier to go for next, as it*

*cartridge, fed via a MF XLPS phono stage into the MFA100 amp. CD playback is via a Unison Research Unico CD and they feed a pair of Spendor S3/5s on Atacama stands. Interconnects and cables are Black Rhodium (you're beginning to see the warmth I have built into the system by now?) My listening room is about 5 metres by 3.5 metres but with very low ceilings (that's Cornish cottages for you), my listening tendencies are predominately electronica, folk and acoustic.*

*First things first - I do love Musical Fidelity products and was hoping to stick with them in terms of amplification. But do I go for the new X-T100 tube amp and power supply (which has the lush valve sound but lacks in power) or do I go for a second hand A5 or A308 (very smooth but no valves but more "slam")? I do find my current set up a bit lacking in bass, and often, especially with records, just plain dreary (as it's too smooth). I'm not adverse to considering other manufacturers either, but again it's the power versus valve scenario. Perhaps I need to listen to a Unico Integrated or a Pathos Classic One to see what a bit of both sound like!?*

*Any help on the matter would be great - I know only I can make the ultimate decision, but your insight may prove invaluable (there are no Musical Fidelity dealers in Cornwall, so I may have to trek into Devon for an audition).  
**Ian Wilson.***



**Musical Fidelity A5 amplifier (top). Serious power with a sumptuous sound.**

*may involve travelling many miles "up country" to go and listen.*

*My quandary is this - I love the sweet, warm musical sound of valves but I also enjoy the dynamics and slam of a solid-state amp too. My Musical Fidelity A100 is on its last legs and I feel it's time for an upgrade. Budget is about £1,000.*

*The rest of my system incorporates a Linn LP12 Valhalla with Ortofon MC*

*A hybrid valve/transistor amplifier might well fit the bill for you if you're after the best of both worlds, and the £1,000 Vincent SV-236 that was fully reviewed by Noel in the November issue and also featured in last month's group test would be well worth an audition. **AS***

*It looks like you need to travel to a Musical Fidelity dealer to make up*

*your own mind. Failing this or the Vincent, also consider the all-valve McIntosh MC275 power amplifier if you can stretch that far. It isn't "warm", but it is smooth and very fast. **NK***

*Certainly if you're wanting to stay in the (Musical Fidelity) club, so to speak, the A5 is the obvious candidate. We really liked this back in 2005, noting that its combination of serious power and sumptuousness was the stand-out point. It's £1,449 new, and may be worth scrimping and saving, but if you're lucky you should find a second-hand one going for under £900. Still, I think as Noel says, the Vincent SV-236 is the obvious sub-£1,000 new purchase. **DP***

### OLD STINKER

*I thought I should write to congratulate you on your excellent treatment of the old Denon DL103 cartridge in the November 2006 edition. I felt you struck a nice balance between praise and criticism - and along the way unearthed some interesting wrinkles. I had suspected that the sharp differences of opinion expressed about the sound of the DL 103 must reflect something other than just differences in musical taste - but it was fascinating to read about just how fussy the old girl is about the pickup arms she is paired with. Despite the time you and Neal Gibbons must have put into your experiments, I suspect there may still be 'a bit more to go' with the DL103. For example, my Mayware Mk V unipivot set to maximum effective mass seems an excellent match. Interestingly, when Hi-Fi Choice tested a DL103 back in 1979, they got remarkably similar results, with excellent tracking and a wide, flat frequency response (almost identical to your trace).*

*However, I did wonder whether you might be barking up slightly the wrong tree on the question of how to mount the DL103. Maybe it wasn't designed to be mounted with bolts tightened to Linn/Rega standards? Rather than fighting to tighten the bolts 'properly' in those plastic slots, I did them up as far as they were happy to go and left it at that - which seemed to suit my DL103. As an alternative to the Linn/Rega 'ultra rigid' school there has always been another school of thought in cartridge/tonearm design which advocated controlled absorption of energy in the tonearm. Mayware used to advise against over-tightening bolts, providing nylon washers on aluminium mounting bolts to prove the point, and The Cartridge Man has gone all the way, placing an isolating pad between the cartridge and the arm. The Denon was probably designed to work with arms with detachable headshells, so maybe it doesn't need (or*



**Denon DL103 - old stinker  
reprieved!**

maybe even doesn't like?) the level of energy transmission provided by ultra-tight mounting bolts. Just a thought.

By producing a proper critical review on the DL103, you have achieved something much more interesting than the nostalgic gushing (or modernist dismissal) that is so often served up in articles on old 'classic' designs. Well done - hatchet buried?

**Alasdair Beal**

PS Dare I suggest that now the old thing really does deserve a mention in your list of hi-fi classics? If the DL103's measured performance is fully up to modern standards and, although not a match for the best, its sound still 'worth a listen' in the 2006 market place, then those Denon engineers back in 1964 achieved something pretty impressive and well worth a mention.

I tighten cartridge bolts to sensible levels only and had no trouble with the Denon cartridges in this respect. A cartridge should mate closely with the headshell over its body area and over-tightening may well distort the body slightly and prevent this. I don't do it or promote the idea. I prefer to use stainless steel hex head bolts, by the way.

I do not subscribe to the idea of decoupling a cartridge from a headshell. Vibration measurement on arms has shown me in the past that headshells are 'alive' however, so decoupling will certainly affect results, as will extra mass. Currently, without sophisticated Finite Element Analysis of arm and headshell structures, arm behaviour is unpredictable and cartridge to arm matching somewhat random in result. It is impossible to say quite what is right. **NK**

I'm glad we're now able to put the Denon DL103 back in its box, so to speak. I thought Neal's review was

an excellent, sympathetic treatment, and we can see that there is some merit in this old stalwart after all. That said, the DL103 is not the universal panacea that some suggest, and the recent advent of the new budget Ortofonos will once again have the Denon struggling to justify their reason to be kept on life support... (Oops - all the impartiality of my opening sentences was lost at a stroke, when my true feelings come

was WD88VA Part 3 -where is part 2??

You ended with "next month input switching board and tweaks" and in September, nothing. Has this article series stopped or will it be continued at a later stage?

**Paul Kosta**

Unfortunately you have found one of our weaknesses here at World Towers - due to the prohibitive cost of purchasing and programming robots we are forced to use human beings to write the mag and we do occasionally slip up, despite regular beatings. The articles do in fact follow each other (with a gap in the September issue, as you spotted) but from the second article onwards they are named wrongly. The full article list is -

July 2006 - (Part 1) Introduction and circuit description

August 2006 - (Part 2, but labelled as Part 3) Choosing components and internal layout

October 2006 - (Part 3 but labelled as Part 4) Input switching board and component tweaks

November 2006 - (Part 4 but labelled as Part 5) Performance.



**World Design KT88 amp - clearing up the confusion**

out once again!). I'll be revising the World Classics very soon, and you never know, you might just see the DL103 pop its little spherical head up and say hello! **DP**

### **GONE MISSING**

I have been obtaining your magazine from our local news agency as from beginning of this year and find the articles educating and interesting.

In July you started an article on the KT88 valve amp and ended the article with "next month we describe internal layout and component specification". In August your article

December 2006 - (Part 5 but we played safe by not labelling it!) Sound Quality.

Hope this clears thing up.

**AS**

### **MING DA - PAH!**

I have recently purchased the Ming Da MC-3R preamp after reading your review of its sister product, the MC-7R, and other reviews of the MC-3R itself. In the technical section of the review Noel stated that there was a 10dB rise at 2Hz which may have been the way feedback was applied, that the amp seemed stable enough but may give a



### Ming Da MC-3R - upsetting a Black Tulip.

dark sound as a result.

I am running my MC-3R into a Musical Fidelity X10Dv3 for impedance matching and enhancement of sound quality, then into a Philips Black Tulip (transistor) power amp. I use a combination of Kimber Timbre interconnects and one other, the brand and type I don't recall. The MC-3R has an output impedance of 100kohm, and I believe the Philips has an input impedance of 50kohm. The power amp has level meters and two sets of inputs; one titled "Direct" and the other "Normal", along with speaker switching (standard Off, A, B and A + B) and individual gain pots for each channel. The schematic on the lid shows the Normal input is rolled off below 20Hz through the inclusion of a resistor (?) in the signal path. The Direct is not rolled off and shows signal transfer from 0Hz (DC?) upwards.

When connected to the Normal Input of the amp there is a small but regular slow pulsing of the Level Meters as though a signal is being sent from the preamp with the preamp's volume at zero and nothing else switched on or producing a signal. When connected to the Direct input under the same conditions the meters swing in ever

increasing level until the DC power protection circuit of the power amp trips and temporarily shuts down, only to repeat the cycle again and again. The same occurs when the air conditioner starts, and cycles on and off. Our power supply company has tolerances of 240v +6/-10% and they faithfully advise me that ours is within the very loose and high delivery parameters when tested by them. No such problem has occurred when connecting my CEC DX71 Mk2 D/A Converter/Digital preamp (2V out) to the Direct input, so it must be the Ming Da.

I can live with the connections to the "Normal" input of the Philips, but my regular Perreux PMF-1850 (Transistor, 180w/channel, containing two regular transformers - the type used in valve amps I believe, and no protection circuitry, but awesome through the Yamaha NS1000Ms) is in for maintenance and I'm afraid the Ming Da will destroy it when it returns to the system. I was intending to upgrade the MC-3R per the Response Audio ([www.responseaudio.com](http://www.responseaudio.com)) website, which turns a sow's ear into a silk purse, but not necessarily on the cheap. Do have a look as there are some very interesting items and upgrade options therein.

Your advice and assistance in diagnosing this unusual electrical behaviour will be greatly appreciated, and any suggestions for ensuring future equipment and personal safety will be valued just even more so.

**Stirling McIntosh**

Sounds like yours is DC unstable and the quick way to ensure this doesn't upset a Direct Coupled amplifier is to insert a series blocking capacitor. I do not know what the input impedance of your Perreux is, so cannot say what value capacitor to use. However, it's easy enough to start with a safe value of 0.1uF. This has reactance of 83k ohms at 20Hz, so will give you a -3dB response at 20Hz into a 100k input, a good starting point. Chances are you'll lose all bass. Just increase the capacitor's value until you get enough bass, but still suppress the low frequency problem. You may need some 1uF caps. and a few intermediate values. Happy tinkering! **NK**

### CUT CONSUMPTION

In these days of increased sensitivity to the environment and in particular our use of energy I think that it would be useful to know the electrical consumption of hi-fi components. I can't ever remember seeing this quoted by manufacturers in the specification of an amplifier for instance. When looking to buy an electric fire this would certainly be quoted and in my experience some amplifiers do tend to double as room heaters! So would it be possible in your reviews at least to mention this aspect and give a guide to the running cost or perhaps give a rule of thumb of how it could be calculated. From my basic knowledge of electronics I understand that this would not be a simple matter because it would depend on the load but maybe for amplifiers some rough calculation that might include the output and the speaker sensitivity.

# Billy Vee

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**KEF iQ5 - happy against a wall.**

On the subject of sensitivity I use some largish transmission line TDL Studio 2 speakers with a quoted sensitivity of 87dB. This seems an average rating but when I purchased them some years ago I was told that they are difficult to drive. However some time recently I read a quote by Noel Keywood stating that transmission line speakers are an easy load; have I been misinformed? When I first used the TDLs it was with a Quad 405/2 for their 100watt power but found the bass response far too heavy. My present amp is a 40 watt Croft Series 4 which give a much more balanced reproduction and has no problem reaching the required volume in my 23x11ft room. But it leaves me with the question that if these particular transmission lines are a difficult load to drive am I missing out on the subtleties? Could I be getting a better performance from a more efficient speaker?

Another aspect about choosing speakers for a particular room is the large amount of space recommended between them and the wall. This is often

very impractical in average size living rooms and in my case the TDLs are probably too close to the rear wall but I have no choice. Why do speakers vary in the amount of free space that they need?

**David Woods**

In Class B amps at least, power consumption depends upon volume level, hence the difficulty of deciding what will be consumed in use - it depends upon volume used. Most amps are fused at 1 amp or so, meaning they draw 250W maximum and, most time a lot less - around 100W is typical. This puts an amplifier on par with a strong light bulb. If it is on for a few hours then total consumption is modest.

A characteristic of a pure transmission line loudspeaker is that it is a perfectly resistive 'easy' load. However, I believe the TDL 2s were more ported (reactive) than resistive and less easy to drive.

that). There are billions of TVs in use around the world, whereas hi-fi is - sadly - a far less common pursuit. **DP**

**QUAD QUANDARY**

I am seriously considering buying a colleague's exquisite consecutive pair of Quad ESL 63s on Stand and Deliver stands (serviced last 2002 by Quad). I know that they are sensitive to the amplifier used. I intend therefore to buy a Quad 909 power amplifier. Can I use my Audiolab 8000a rather than invest further in a Quad 99 preamp or would that combination cause me problems?

**Tony Lawrence**

Yes, you can, but the final combo will sound rather dry and unexciting in my view. Try listening also to Quad 11-forty valve power amps as these are a perfect match for ESL63s. Otherwise, consider any high quality power amplifier up to around 60W output. The Quads look right into



**Naim Nait 5i (bottom) should work well with electrostatics.**

Moving a loudspeaker away from a wall lessens its efficiency at coupling into and driving the room's main modes, reducing what is termed "room gain" and apparent bass. You will also get better imaging away from a wall. Loudspeakers like KEF's iQ5 are designed to work close to a rear wall; you could well replace your ageing TDLs with this modern design. **NK**

It's interesting that Flying Mole Corporation are making a big noise about the 'environmentally friendly' nature of their amplifiers, which is to say that they use Class D, which is extremely efficient. Anyone who's used a Class D amplifier will find they don't run very hot and the lights don't dim when you switch them on, which is a problem with some Class A and AB amplifiers I could name. In the great environmental scheme of things, I think not leaving your TV on standby overnight would help the environment more than a few valve aficionados abandoning glass bottles, or the odd Class A transistor amp going up in smoke (and I can think of one design that's particularly good at

amplifiers so if their component quality isn't up to scratch - meaning top audiophile standards - then you may not like what you hear. Also, there is no box to boom away in the background to add bass, so any amp you choose needs to be fairly solid in what it can do lower down. Matching transistor amps to ESL63s can be a bit of a headache, but by no means impossible. I asked Naim whether theirs can drive electrostatics and, after a little head scratching, said they can. The Nait 5i is balanced suitably for the Quads and could be worth a listen. **NK**

Agreed - the Audiolab 8000a preamplifier is good for a £500 1990s integrated, but not brilliant in the great scheme of things. However, I would say it's probably as good as - if not better than - the Quad 99 preamp, which is a device I don't hold much affection for. It is sterile, barren even, in the extreme. The 909 does drive 63s fairly well - at least the one I tried with the One Thing Audio modded '57s back in 2003 - and is a good value, affordable audiophile power amp. But I'd be tempted to go

for a warm preamplifier, and Croft's £990 Vita suggests itself here. If this is too much, the £288 MeiXing' Electronics' MC-7R valve preamplifier (aka Ming Da) is a fine budget choice. I'd be tempted to use this with 909s, then upgrade to Quad 11-fortys later, as Noel suggests. **DP**

### OPTIMOD

I was surprised to see Steven Green, who has written an excellent series of articles on digital radio, trotting out the all too frequent hi-fi writers' line about the supposed quality of FM Radio 3. I actually gave up on this year's Proms, fed up with heavier-than-ever use of Optimod Compression. There was hardly any perceivable dynamic range in all but a few concerts I tried. Indeed, climaxes were squashed so flat as to sound less present and powerful than the boosted start of the crescendo or build-up! Even as recently as 2005, there were concerts with a spacious and reasonably dynamic character, with microphones not so remorselessly close. Of course the base sound quality of FM is superior to low-bit rate DAB, but not even the Magnum Dynalab MD-100 I've been using for the last 4 years can rescue the Radio 3 signal as currently broadcast. I began listening to Radio 3 in the 1970s, and I've often defended their innovations and broadcasts of music other than classical. Now they've lost me, because the sound as transmitted seems to me unsuitable for hi-fi listening, especially with my beloved orchestral music.

I wish SG and others would attack Radio 3 for this, as well as the easier target of DAB's inadequacies. (For reference the rest of my system is ATC pre/power, Harbeth C7s with Townshend Supertweeters. It offers no hiding place to the present miseries of BBC Radio.)  
**Jayne Lee Wilson.**

Ah yes - Optimod. It's been a long time since I've had to endure a long tirade about it from a local BBC sound engineer when he corners me in my local, close to the BBC Maida Vale Studios. This is an analogue compression system used by Radio 3 (and others). It destroys quality, he has told me on many occasions, until I realised the antidote was three pints of strong lager courtesy of Hi-Fi World, at which point his system went into mute. I am sure Steve Green can say something intelligent about it! **NK**

Well how's about this for a bit of crystal ball gazing? DAB dropped down to 64kbps mono on all networks, all the music stations transmitting digitally in 'hi-fi stereo' AAC+ at 128kbps or more, AM shut down and FM running high quality,

uncompressed, undigitised studio feeds, for audiophiles? Forget all that iPod paraphernalia I put down on my Xmas pressie list - this is really all I want for Christmas. Oh, that and world peace, of course. And I suspect the latter will come sooner... **DP**

### THINK PINK

Can you help me, I had a copy of HI-F World from June or July (I have the last 8 years or so as well) but having recently moved house have 'misaid' them, there was a readers letter detailing some pink RS cable they used as speaker wire and I would like to buy some - it was about 15 quid for 25 metres. Is there any chance you could tell me what the RS code is, please, as I would like to use some in a system I am putting together, Garrard 401, SME 3009, Goldring 1042, Sugden A21a, LS3/5a,  
**Mark Goddard.**

This is (from memory) 359-510, a PTFE covered, silver plated copper cable, in delicate pink, with a current rating of 9A. A 25m reel is priced at £14.25+VAT. Look at p1-113 of the latest RS catalogue. I see they now offer a 38A version - only in pink! - priced at £50 for 25m. However, readers should note that RS only accept trade orders; they do not sell to the public, and prices do not include VAT. **NK**

### YES TO YAMAHA

I have an unusual set-up: a Dell desktop PC driving a pair of Yamaha HS-50M Active Near-field Studio Monitors. As a composer I use this setup to record and mix my music. But I think that Yamahas have some strengths in which your readers would be interested.

I bought them for £260. Considering they are powered monitors, I think they are good value. All you need is cables to connect them to your soundcard (or a preamplifier.) They can also accept balanced inputs if your preamp has balanced outputs. The main strength of these Yamahas is their bass instruments reproduction. They get hold on to the bass lines and never let them go. The bass instruments sound very tight and tuneful, and go very deep for the size of these small monitors.

These monitors have a total of 70 watts bi-amped power each, so they can go loud as well. Their tweeters are smooth and sweet sounding and never tiring.

For some tastes they can sound bright and forward because they are designed to show the individual sounds in a mix well. But after some listening one can get used to this bright sound. There are also switches on the back panel to cut or boost treble, mid and bass frequencies. So they can be adjusted to suit the individual tastes and room acoustics. I use them with everything set to flat positions. For me they sound dynamic, light, airy and un-boxy with good imaging.

I use to have an Epos 11 and Pioneer A-400 amp setup, but unfortunately I sold them some time ago. But these Yamahas sound good enough for reasonable hi-fi listening. I think with attention to detail in pairing them with a warm sounding preamp they would give very good results.

**Billy Coskun.**

The HS50Ms are apparently the spiritual successor to the well known and somewhat controversial NS10M near field monitor used in studios world-wide. I am not surprised you find them quite bright, as the NS10s were notoriously treble-heavy, hence the now infamous 'toilet paper mod' to the tweeter!

Personally, I have always thought that active loudspeaker operation is a fundamentally sensible way of doing things, with separate amplifiers left to concentrate on specific frequency ranges, and a session with some active speakers would seem a worthwhile addition to the Hi-Fi World future agenda brainstorming list. Thanks for the recommendation!  
**AS**



**Yamaha HS-50M speakers - bring on the toilet roll....**

## WIN A FANTASTIC ACOUSTIC SIGNATURE CHALLENGER TURNTABLE WORTH £1,500!



**H**ere's your chance to win one of the very best 'affordable high end' turntables on the market, the heavily engineered Acoustic Signature Challenger, complete with Rega RB250 arm fitted and ready to go! Here's what David Allcock wrote about it in our November 2006 group test:

"It's a German-made, solid subchassis turntable, based around an aluminium chassis with three composite feet. The basic chassis weighs in at 10kg, and this supports a 10kg platter manufactured from a soft alloy, the bottom surface of which is then coated in a damping material which feels like Sorbothane. The platter is topped with a felt mat. The inverted bearing is unique, using a material called Tidorfolon, which is

a composite of titanium, vanadium, ferrite and Teflon. This material was developed specifically for use in turntable bearings; it is claimed to be effectively silent in operation, self-lubricating and very stable over time, theoretically making it an ideal bearing material. The motor is a 24v standalone unit in an aluminium housing with a single pinion, speed is changed via the motor drive unit.

Its driving bass arrived in the room with the kind of impact usually associated with £4,000 US superdecks, not £1,500 'mid priced' designs. Bass just seemed to keep going down, yet there was simply no smearing. This deck had the best timing of the group, propelling the music along with incredible energy and drive. This deck not only had incredible low frequency power, but also great subtlety. Vocals were

reproduced with stunning clarity and transparency. The incredibly quiet background of this turntable allowed every nuance of performance to be perceived effortlessly. Vocals were richly detailed with texture, with changes in breathing and subtle shifts in emphasis apparent with incredible ease, whilst the high frequencies were equally impressive, with cymbals and acoustic guitars having a natural, unforced presentation. This deck was incredibly resolving, but this information was placed in a musically coherent context. Whilst this deck screams heavyweight, evoking thoughts of a leaden, ponderous performance, it was none of these. It proved fast, with excellent resolving capabilities, had outstanding transient attack and a huge dynamic range. The Challenger is set to make a lot of people reconsider their expectations of a deck at this price point, and offer simply phenomenal value for money."

If you'd like to win this superb turntable, all you have to do is answer the following four easy questions and send your entries on a postcard by 31st December 2006 to: **January 2007 Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

### QUESTIONS

- [1] where is the turntable made?  
 [a] Germany  
 [b] Japan  
 [c] United States  
 [d] UK
- [2] What type of subchassis does it use?  
 [a] solid  
 [b] suspended  
 [c] floating  
 [d] sprung
- [3] What did DA associate the bass with?  
 [a] £4,000 superdecks  
 [b] £40 MP3 players  
 [c] £400 CD players  
 [d] £40,000 PA rigs
- [4] What kind of value for money does it offer?  
 [a] "phenomenal"  
 [b] "staggering"  
 [c] "amazing"  
 [d] "gobsmacking"

January Competition  
 Hi-Fi World Magazine  
 Unit G4 Argo House  
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**OCTOBER 2006 AAD C-550 FLOORSTANDING LOUDSPEAKERS WINNERS:  
 Mr S. Aswat of Batley, Mrs G. Lauder of Tyne & Wear and Mr A. Finch of Shropshire**



Maximum Supertweeters mirror finish.



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For full details of our products, please see our website or request a printed brochure.

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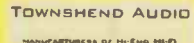
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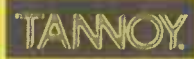
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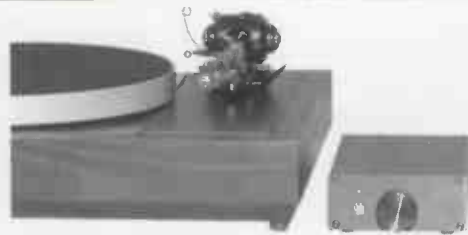
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In-house measurement is costly and time consuming, yet it has always been central to our belief that both readers and manufacturers deserve it, because there is no alternative if complex technologies are to properly assessed.

Measurement achieves many things. It ensures a product is working properly before it is subjectively auditioned. We pick up problems like loudspeaker drive units wired out-of-phase by accident, digital filters that roll-off in a bizarre fashion due to design error, a transmission line loudspeaker with no bass (!), amplifiers with excessive d.c. offsets, excessive jitter and all manner of other funnies.

Manufacturers published data is then checked against our measurements. There is usually little problem here.

The reviewer is then given the results. This gives useful guidance on what to watch out for in listening tests. For example, if three CD players use the same chip set they may well sound much alike in their basic attributes, if not identical. This is useful information for a reviewer.



Hi-Fi World uses a range of test equipment from around the world, including a Rohde & Schwarz UPL for testing CD and DVD players. Amplifiers are tested with 8903B Audio Analysers from Hewlett Packard. Loudspeakers are measured with a Bruel & Kjaer measuring microphone and Hewlett Packard 3561A spectrum analysers. We use three of these for basic test work and to ensure our listening room and conditions are balanced. Tuners are measured with a Leader 30125 Lab generator and Marconi 2015 RF generator, plus external MPX filters and equalisation.

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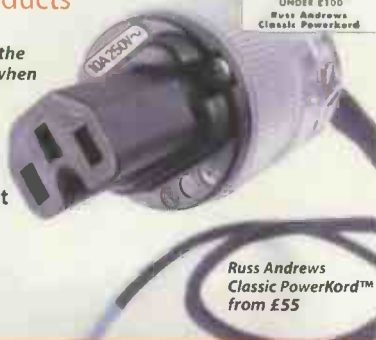
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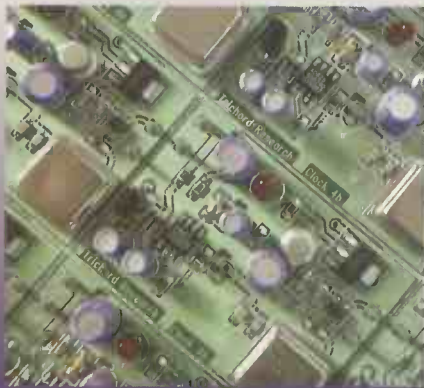
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WANTED: BRYSTON 3BST power amp. For Sale: Quantum III Space & Time 2m lengths speaker cable. £125. Tel: 01803 523 553 (Jan)

AUDIOLAB 8000M £299 each. Finestra pre-amp £325. Jolida 502 valve amp, 60 watts per channel, £450. Russ Andrews PBJ interconnect £29 each. All boxed and lit. Tel: 01902 764 747 (Jan)

GARRARD 401 with RB300. Both in good condition, £349 including plinth. Also Ortofon Rohmann MC £299. Or sold all together £549. Tel: Steve 07745 450 581 (Jan)

MUSIC FIRST passive pre-amplifier £895 (£1500). Hegel H2 power amplifier 150 wpc, balanced and unbalanced outputs, £795 (£2500). Tel: 01202 767 873 (Dorset) (Jan)

AUDION GOLDEN NIGHT PX25 valve power amp new KRPX25 good condition £1795. Proac Response 1.5 floorstanding speakers, 3 years old, boxed, £795. Tel: 01924 893 372 (West Yorkshire) (Jan)

FOR SALE: James A. Michell Focus One Turntable with Mission Arm. £250. Phone Peter on 07764 514376. (Jan)

WANTED: (1) MUSICAL Fidelity MC4 loudspeaker. (2) DIESIS loudspeaker circa 1980. Tel: 01843 843 145 (Jan)

UNISON RESEARCH S.6 valve amplifier £950. Unison Research Unico P valve CD player £450. Both as new. This years models. Tel: 07714 216 755 (Jan)

WORLD DESIGNS WD25A speakers. XL tweeter. Final Stage 4 crossover. New. Built by World Designs, £500. Ebony black. Can supply suitable stands at no extra cost. Tel: 01373 301 423 or 07840 493 853 (Jan)

SOUND ORGANISATION five tier rack, black, as new, £110. Sennheiser HD495 headphones £45. Tel: Jules 01926 420 208 (Leamington Spa) (Jan)

A&R CAMBRIDGE C200 control unit and SA200 power amplifier £200. Arcam Alpha 8 CD player £120. Denon cassette player £50. Sansui digital synthesizer tuner TU-D99X £70. Excellent condition. Tel: 01372 273 656 (Epsom) (Feb)

RUSS ANDREWS Mega Clamp Ultra (£250) £175. Shun Mook Mpingo Disc (£50) £30. Cable Talk Broadcast MkII interconnects 0.5 mtr pair (£60) £35. Tel: Stuart 01384 394 441 (West Midlands) (Jan)

MAXELL TAPES. 7" on clear spools. Used once to transfer onto CD. In plastic bags with labels. XLI 35-90dB £8 each. plus £3 P&P. Tel: 07710 828 286 (Brighton) (Jan)

ARTEMIS LABS LA-1 purist valve preamp with stepped attenuator. Superb, neutral sound, six months old (£2200) £950. Revel B15A subwoofer, nine months old (£2500) £1200. Both mind, boxed. Tel: 07786 964 335 (London) (Jan)

ARCAM 82T CD player, Arcam A80 amplifier and P80 power amplifier for sale. Excellent, new condition. Colour silver. Bargain Price for the lot is £850-00. Each item well over £400-00 new. Contact Andre on 07947 473 622 (Jan)

ORACLE Si3000 Reference integrated amplifier. 300w/8ohms. Limited Edition. Stunning engineering, design and sound. £4,250 (£10,000). Nordost SPM speaker cable, 6 metre stereo pair. Mint. £1695 (£5000). tel 07917 571 619.

QUAD ESL63s + stands + 2x 405s in single chassis with up-rated power supply + Sony tuner + Marantz CD £1000. Radford STA25/3 + SC2 unrestored £450. Tel: 01243 576073 (Jan)

MERIDIAN 596 DVD/CD player, Scart version with MSR + remote. Mint condition with box and instructions. Little used. Selling due to upgrade. £600 ono. Tel: 01354 691 414. AM only please. (Jan)

NAIM 82 - NAP SC HiCap 250 £2000. CDI £450. SBL's £500. Serviced. Boxed. Celestion 66 studio monitors £300. Quad 33/303/FM3 £250. Thorens TD160B Hadcock Unipivot £200. Sansui AU 217 £65. Tel: 01722 334 694 (Salisbury) (Jan)



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**BRILLIANCE SYNERGY - 2006** What Hi-Fi best stereo interconnect award. Praised by HFW and included in HFC Buyer's Bible. Demonstration cables available. Contact Mike on 07963 117 341 or see www.brilliancehifi.co.uk for dealerships. (Jan)

**A NEW DIY audio project every month!** Original designs for free. Just download them! Kits of parts available. This month 40w feedbackless hybrid amp and passive preamp. Checkout www.inline-electronics.co.uk (Jan)

**MAGNA ACUSTICA**  
Speakers clearance, ex-demo, feature cross-over less full bandwidth with fast transient response, deep bass together with high frequencies and uncompressed mid-range, only £950. Tel: 07810 370 010 or Email: vl@vnmwlim.com (Jan)

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**AMAZING CABLES!** DIY or ready made solid silver interconnects, speaker cables and powercords, with world-class connectors. True high end performance at real-world prices. Sole UK agent for Voodoo Cable of Germany - www.voodoo-cable.com Tel. 0115 982 5772 after 7pm, Email bob@skydivers.co.uk (Jan)

**AUDIOPHILE OBJECTIVE** for New, X-Display and Preowned Hi-Fi. Regular brands and some not so known. We're 5 miles south of Stansted airport in Sawbridgeworth. Free Parking. Tel: 01279 724 024. Hi-Fi Purchased. (Feb)

**AUDIO SHED.** Top quality hi-fi for sale. Beuhorn, Croft, Voodoo, Headlund Horns, Experience Filtration, H-Cap, Cut Loose Audio, Canary Audio, Omega speakers etc. Blackgates and Audio Valves also available. Please call 01923 828 765 or 07900 918 882 (Jan)

**AUDIOREPUBLIC,** 78 Otley Road, Headingley, Leeds, 0113 217 7294.  
Yorkshire's newest Hi-Fi retailer, stockists of Naim Audio, Rega Research, Conrad Johnson, Sugden, Dynavector, (cartridges and amplifiers) and many more. Please call for advice. (Jan)

**AUDIO VALVES.** Over 100 types. Stock list available. Wilson Valves, 28 Banks Avenue, Golcar, Huddersfield, HD7 4LZ. Tel: 01484 654 650. Fax: 01484 655 699. Email: wilsonv@zoo.co.uk (Apr)

**"AMPS" QUALITY Valve Amplifiers:** Repaired, restored, upgraded. Kits assembled. Experienced Engineer. Free estimates and fair prices. Tel: 01525 756 935 Website: http://www.valveamprepairs.co.uk Email: amps@dhaen.co.uk (Jan)

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# NEXT MONTH



As the festive season draws to a close, it's time to pack up the decorations, take down the cards and make room for even more hi-fi! February 2007's *Hi-Fi World* has plenty of 'New Year's resolutions' for you, with a wide range of wonderful and (sometimes) weird kit. Here's just some of what we hope to bring you:

**SME M2-10 - STEYNING'S NEW 10" TONEARM**

**MARANTZ CR-601 - MINI SYSTEM WITH ATTITUDE**

**NAIM NAC122X, NAP150, FLAT CAP 2 - PRE / POWER AMPLIFIERS FROM SALISBURY**

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**TIMESTER AUDIO T200 MK2 - ODDBALL TUBE AMPLIFIER/ HEADPHONE STAGE**

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**MOWGAN AUDIO MELLT LOUDSPEAKERS - GAELIC FOR LOUDSPEAKER**

**STANDMOUNTER SUPERTEST: ACOUSTIC ENERGY AELITE 1, B&W DM602 S3, MISSION M60i, ALR JORDAN CLASSIC 1, KEF iQ3, MONITOR AUDIO SILVER RS1, QUAD 11L 2, TANNOY SENSYS DC1 & USHER S-520**

**PICK UP THE FEBRUARY 2007 ISSUE OF *HI-FI WORLD* ON SALE DECEMBER 30TH, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: p68**



# classifieds ads order form

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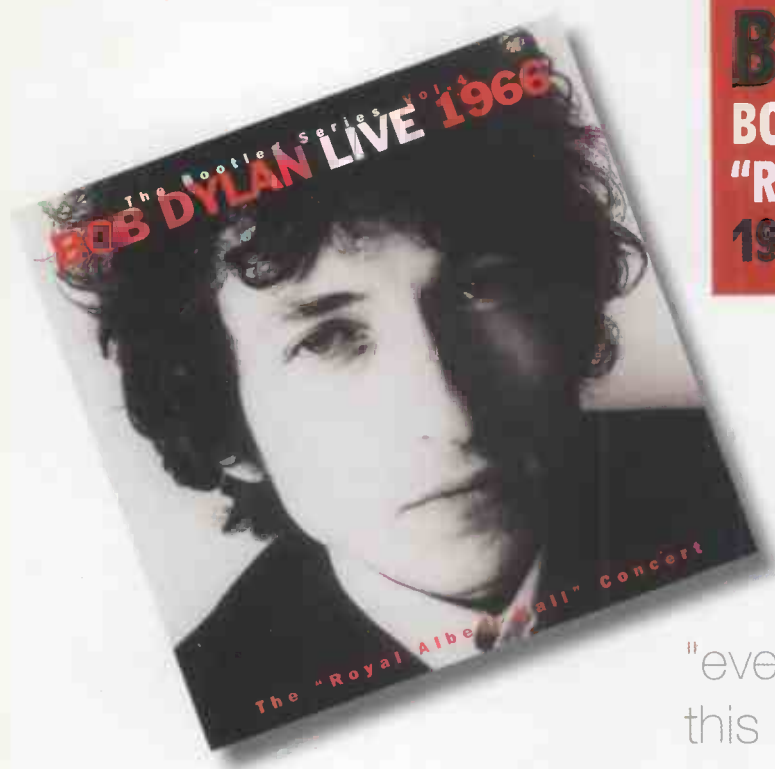
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# BOB DYLAN

## BOOTLEG VOL. 4, LIVE 1966, "ROYAL ALBERT HALL CONCERT" 1998 [CD]/1999 [VINYL]

"even without the later controversy, this acoustic set is worthy of highlight as it is his best ever.

Instead of a classic album *per se*, this month a classic bootleg is featured which has, since its official release, quickly created a reputation to become a modern classic all on its own.

This famous Dylan Albert Hall bootleg... wasn't. After much arguing amongst Dylan discographers and fans, the source was verified as after the preliminary mix of a proposed Columbia edition was bootlegged in 1995 as 'Guitars Kissing & The Contemporary Fix' (a name taken from Bob Dylan's book 'Tarantula'). The location and time was finally agreed as Manchester's Free Trade Hall on May 17th, 1966 – hence the original title appearing in quotes. The bootleg highlights Dylan's transition from an acoustic style to electric, which he was exhibiting during the tour.

The first portion of the concert begins easily enough with an acoustic set. Dylan, an acoustic guitar and a harmonica are centre stage for the first seven tracks. Even without the later controversy, this acoustic set is worthy of highlight as it is his best ever. He seems to be playing with a new sense of vigour, although it may be just excitement at not knowing how the crowd will respond to the coming electricity. He'd had bad experiences at the earlier Newport Festival gig where, after playing his electric set, he had to play some additional acoustic numbers to calm the crowd down.

As he launches into his electric set, the atmosphere is deceptively pleasant. However, that changes with time as the audience begins to

heckle. Before the final song, the mood of the increasingly raucous audience spills and, during a brief silence, a symbolic and historically momentous word is shouted. One of the dissenters rebels against Dylan's move towards rock music, comparing it to the ultimate betrayal and shouts, "Judas!" Dylan sneeringly replies, "I don't believe you! You're a liar!" What follows is murky, but could be Dylan telling his backing group, The Hawks, to, "play it f\*\*king loud," or The Hawks' Robbie Robertson shouting, "get f\*\*kin' loud!". The end result is a blistering 'Like A Rolling Stone' that shakes the foundations of the already astonishing original version, leaving no doubt that Bob Dylan and his electric guitar get the last word as the tumultuous evening comes to a close.

For those who haven't heard it, The "Royal Albert Hall" concert will be a revelation. None of Dylan's studio recordings comes close to capturing the ferocious intensity heard on this live album. Collectors who already know how great the show is through the magic of bootleg tapes will want the official release as well.

The sound is fantastic and the CD set (released in 1998 via Sony) comes with a booklet full of rare photos, along with informative text. Even though it took over thirty years for this monumental album to see the (legitimate) light of day, it was well worth the wait. Bob Dylan music, or for that matter, music period, doesn't get much better than

this.

For the vinyl box set (released in 1999 by Classic Records) there's a 56-page booklet of the event including an essay by Dylan's friend, the folk musician, Tony Glover. The vinyl cut utilises the 1/2" analogue mix down masters whilst Classic also uses its own 'all tube' cutting system which was handled by the vinyl guru, Bernie Grundman. Originally released on 140gm and 200gm vinyl, the set was deleted shortly after release. However, thankfully, the 200gm set was re-released in August 2006 and the 140gm version was re-released in September 2006.

When discussing the sound quality and which format is better than others, the final analysis is a moot point. You either listen to the bootleg version or the official version. The latter wins hands down. The CD version of the concert is excellent whilst the vinyl version adds that trademark warmth. The vinyl version is also more dynamic and detailed with a deeper soundstage. This is not so much directly attributable to the vinyl format, although it helps of course, but more down to Grundman's mastering skills, "The whole point is to put as little in the way of electronics into the sound as possible," said Grundman. "The trick is to give the [records] the highest degree of quality but to do so with a minimum of processing and a minimum of artistic coloration. We accomplish that with a combination of clean electronics and an open mind." **PR**

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## REVEL

The much awaited Ultima Gem, Studio (\$15,000 per pair) and Salons (\$22,000) were launched. Expect a big performance increase on previous models and a more Italian and conventional timber finish. The combination of Harman research facilities and the genius of Kevin Voecks guarantees future classics; could be the one for you!



## OPERA

Opera offer cabinets with timber and leather remarkable even by Italian standards; and affordable. The value kept raising itself as the compelling reason we had to commit very seriously to this manufacturer. "These speakers sell for how little? Are you sure?" Opera is in stock and on demo as we write - from £695 up to £9,995. How to describe their sound? Detail and dynamics combined with Italian passion and organic authenticity. In other words: a high fusion of technology and music. Brilliant.



## SYSTEM AUDIO

Based in Denmark and founded by music-lover Ole Witthoft. Noted for super value, the company has worked for years to design a flagship. At first glance the Explorer is a conventional slim Danish floorstander that will grace any living room. Closer inspection reveals a composite of 42 wood pieces. The drivers employ the lightest membranes every employed: the challenge of 80mg for the tweeter is thrown out to all competitors. The result is audible. The price is the best news: £2,490 per pair.



## PROAC

This aristocratic manufacturer is about to launch the Response D28. Slimmer and floor-ported than the D25 which it will replace, it will sell at £3250 - £3900 (premium finishes) per pair, UK including VAT. The D25 is already a sensation (buy our nicely run-in demo pair for only £2,350 (RRP £3,675 in Birds Eye Maple, an exquisite finish appropriate to this exquisite loudspeaker – they look as special as they sound).



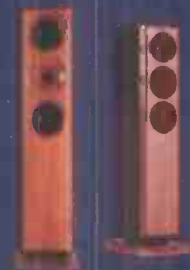
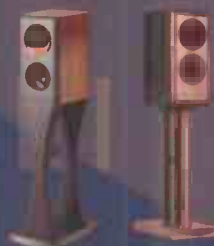
## THIEL

The wait for the much anticipated CS3.7 (shown at Los Angeles Show in June 2006) is almost over. The Show reports and previews give just a glimpse of this ground-breaking speaker. Expected UK price is £6,995. Pre-order yours from the Audio Salon today so you don't have to join what will be a very long queue!



## ZINGALI

At the end of the alphabet and the conformity scale, Zingali is like no other loudspeaker in the world: a unique blend of coloration-free horn, compression driver, and the patented Omnidray dispersion. Prices start from as little as £995 per pair. Call for more details.



To find out more - call the Audio Salon on 0845 4000 400 today!

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Melody Pure Black 101d Preamp

*Melody*



Pure Black 101d (rear)



Astro Black 50



Pure Black 88



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## Melody Pure Black 101d Valve Preamp

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