

EXCLUSIVE! FIRST UK TEST OF SONY'S DVP-S9000ES SACD/DVD PLAYER

HI-FI CHOICE

THE FINEST HI-FI MAGAZINE IN THE WORLD JANUARY 2001

MULTI CHANNEL SPECIAL!

Your complete guide to surround sound on CD, DVD-A, DVD-V ...and more



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A dozen surround sound amps take the 5.1 channel challenge!

BASS INSTINCT

Six subwoofers go head to head: how low can they go?

SPEAKER SYSTEMS

Our experts test ten surround systems for music and movies

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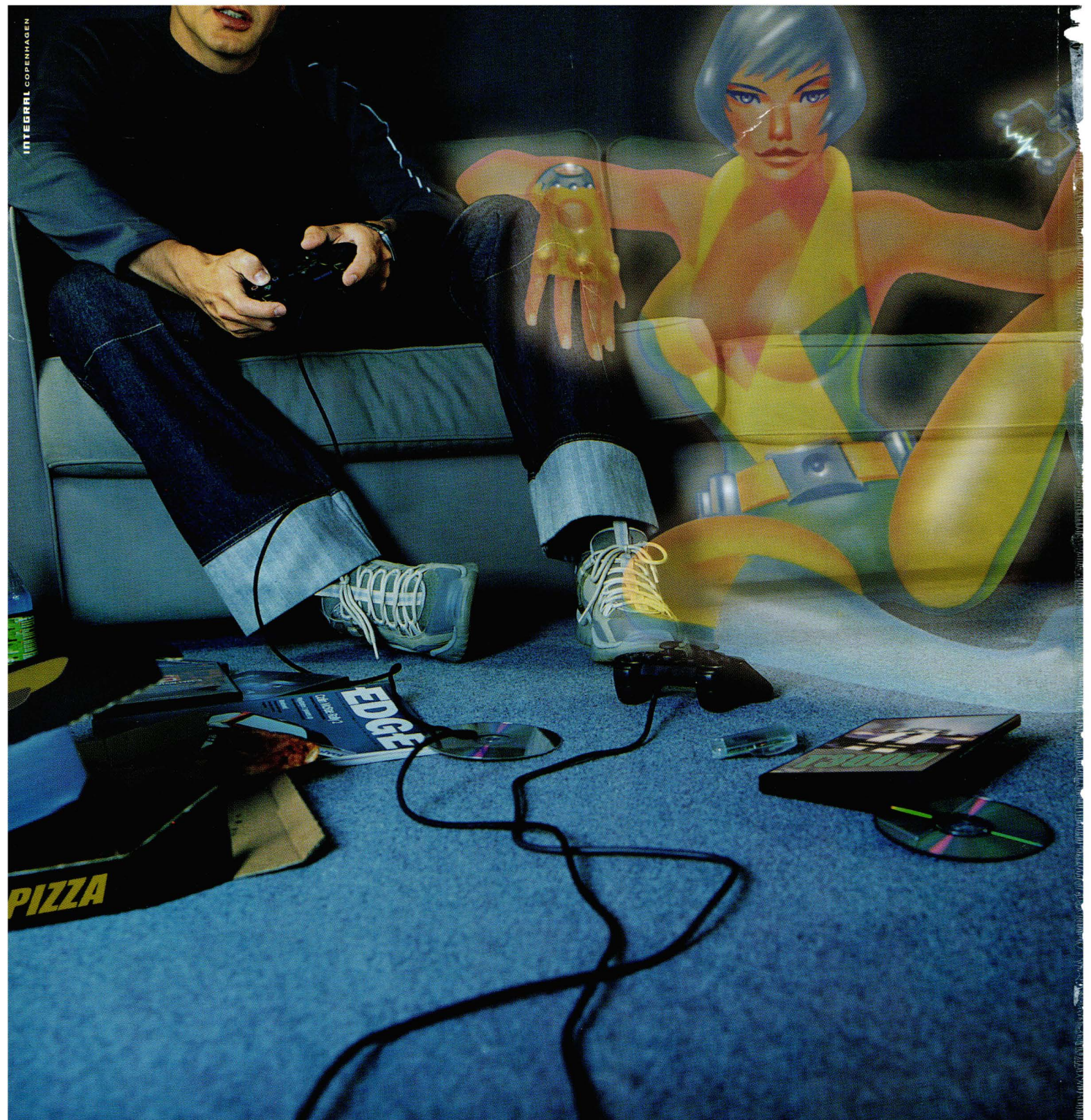


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Tim Bown likes dance and indie music and plays it on an Arcam FMJ CD player, Musical Fidelity amp and PMC speakers.



Dan George likes rock music and plays it on a Marantz CD player, Audiolab amp and B&W Matrix 801 loudspeakers.



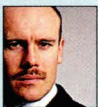
Alvin Gold prefers serious classical music and has a predilection toward Krell amps and JM Lab speakers.



Christian House has just discovered hi-fi and likes folk/pop/rock which he enjoys via Philips cans and a Discman.



Paul Messenger likes dance, folk, rock and classical music on vinyl and uses Linn, Naim and Rehdeko kit with gusto.



Paul Miller is the king of the technical world when it comes to hi-fi. He uses DPA amps and Audio Note speakers.

TESTING TESTING

Each issue we bring you the best that hi-fi has to offer, reviewed and rated using the most rigorous testing process in the business. We focus on transparency and resolution, mixing traditional hi-fi values with the latest technological developments via a blend of subjective views and scientific analysis. Our writers are the most experienced in the business, professionals one and all, you can trust their ears.

BENCH TEST

Our main group test each month takes a key product area and mixes models from the gamut of brands on the market. The process consists of three stages: 'blind' listening, hands-on subjective testing and scientific measuring. The latter phase is conducted by our Technical Editor using computerised measuring equipment custom designed for the purpose. He is generally recognised as the leader in his field and you won't read his hi-fi insights anywhere else.

GROUP TESTS

Each issue features a number of additional group tests aimed at narrowing the field in a specific product area. Here the testing involves just the reviewer concerned with no lab or panel testing, but plenty of comparisons.

AWARD TAGS

The best products in each group test receive a HFC commendation. Very impressive performers receive a Recommended tag. Products that offer good value for money are awarded a Best Buy, while the best of the new, non-group tested products receive an Editor's Choice.

'BLIND' LISTENING

A panel of industry experts is assembled for our unsighted listening tests. We disguise the products being presented and play a set selection of tracks at a pre-determined volume level.

W

elcome to the all new Hi-Fi Choice, I hope you like it. Those of you who've been reading for some time may be a little taken aback by this change so I'll explain our reasoning.

Basically the magazine market is becoming increasingly competitive and getting a title noticed is more and more difficult. Hence the clean lines of the cover over the past few months. However, a cover alone is not strong enough to sustain a broad readership, something that we need if quality hi-fi reviewing is to remain in print in the 21st century. Hence a re-appraisal of the pages inside. We have freed up some space by removing the price guide and given our review pages a bit of room to breathe. So although the new Statements section - now called High Performance - looks a bit picture heavy, there is still the same amount of text as before.

We're sticking with the same tried and tested review procedures, and the same highly experienced contributors. That includes lab testing which goes considerably deeper than the figures might suggest. To prove it we're working on incorporating lab reports onto web site reviews and are in the process of building a site for Tech Ed Paul Miller, so you can look at graphs for as long as your heart desires.

A less experienced new member on the team this month is Staff Writer Dan George. Dan joined towards the end of this issue but has already made our lives easier. What's more he's a dedicated hi-fi nut, a fact proved by his recent purchase of some B&W Matrix 801s, serious speakers if ever were. What's more he likes Led Zeppelin and mountain biking - a better qualified staffer would be hard to find.

Technics' DVD-A10 DVD-A player managed to pull through the shenanigans that have been blighting early 192/24 software to win an Ed's Choice. There are several other contenders this month, the Nautilus system in particular, which is really too good for current surround software. Roll on lossless compression.

Jason Kennedy Editor

"We're sticking with the same tried and tested review procedures, and the same highly experienced contributors."



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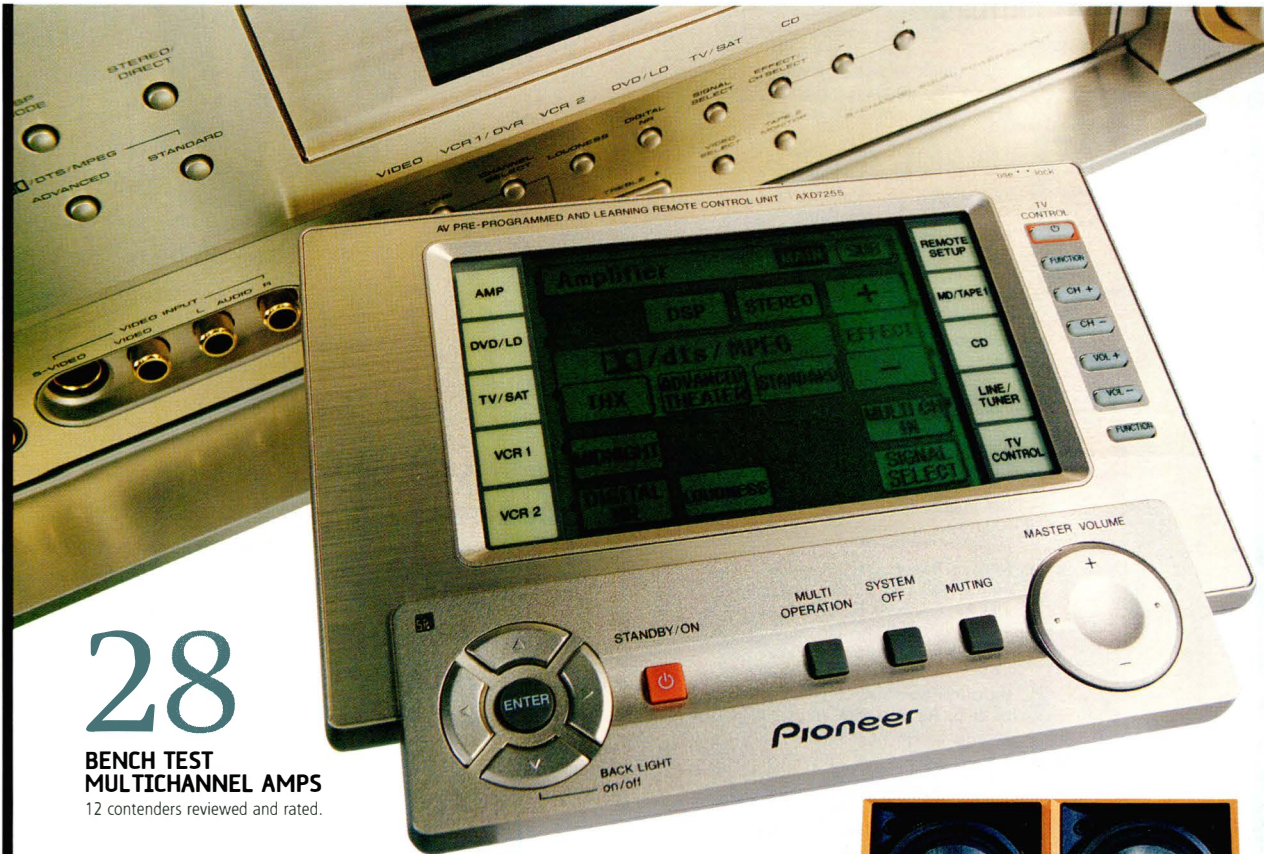
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MISSION

MISSION

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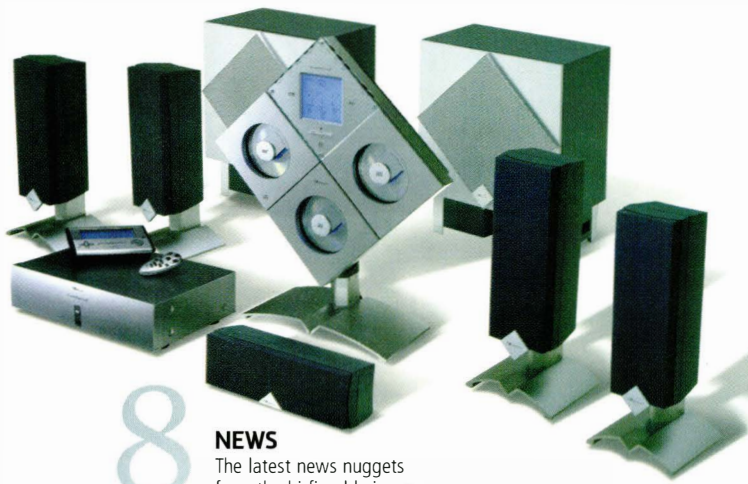
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NEWS

THE LATEST IN HI-FI WITH TIM BOWERN



The SoundSpace 12: we'd like this lot in our stocking, please.

PHWOAR!

NAKAMICHI REDESIGNS HOME CINEMA SOUND

Nakamichi has unleashed a fresh wave of highly stylised systems, just in time for Christmas. It all kicks off with the SoundSpace 1 (€450), a tiny wall-mountable system consisting of CD, radio alarm and separate active speakers.

Then there's the SoundSpace 9 (€3,000), a larger yet still wall-mountable set-up which includes a three-disc CD multiplayer, AM/FM receiver, two satellite speakers and a subwoofer. The selection is topped off with the SoundSpace 12 (€6,000), similar in design to the SoundSpace 9 but incorporating a twin CD/single

DVD multiplayer, Dolby Digital/dts processing, multichannel amplification, twin subwoofers and five satellite speakers for full music and movie playback. As you can see from the picture, it's a stunning beast and no mistake.

Also new from Nakamichi is a standalone DVD-Video multi-player, the DVD-15. It can store up to five DVD discs at once, using the brand's MusicBank internal stacking system. Dolby Digital and dts decoding are on-board and it costs £1,100. BBG Distribution ☎ 020 8863 9117

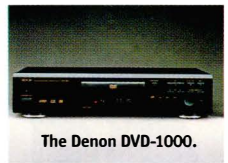
BABY DVD

DENON HAS A NEW FIRST-RUNG PLAYER

Denon's DVD family has a new arrival. The DVD-1000 weighs in at £300, its maker boasting of audiophile circuit design and new video technology for an outstanding budget blend of music and movie playback.

The company has plundered its high-end DVD experience to select some serious components, which include well-specified Analogue Devices DACs in dual differential configuration for superior audio performance. There's no built-in decoding, in line with the majority of sonically strong players – it outputs dts and Dolby Digital datastreams and is compatible with DVD-Video and CD.

Denon ☎ 01234 741 200



The Denon DVD-1000.

IN BRIEF

KERBANGO is a new brand of radio aiming to take Internet audio Webcasts to the mainstream. Styled like a traditional table-top radio, the Model 100E hooks to the Net without a PC so you receive audio streams directly from a phone line. It's available from the US at \$299. Website: www.kerbango.com

THE NEW GROVE II claims to be the most comprehensive music reference site available on the Internet. You'll find it at: Website: www.grovesmusic.com

AUDIO NOTE has expanded its range of compact, valve-based Zero systems. The Deluxe package adds the new DAC One 1x and a pair of AZ Three speakers to the standard transport and pre/power amp, all at a special

C'MON, KEF UP

KEF WANTS TO HAVE YOUR HOME SURROUNDED – IN STYLE

KEF is the latest specialist UK manufacturer to launch itself into the world of stylish-sub/sat systems with the highly compact KHT 2005 multi-channel speaker package designed to get the most out of both music and movies.

Priced at £800, it consists of five aluminium encased HTS 2001 speakers, each sporting a new 100mm Uni-Q driver with an aluminium faced polypropylene cone and die-cast chassis. These are partnered by the PSW 2000 active subwoofer, complete with a 150 Watt built-in amplifier and a 200mm downward-firing bass driver. A 'two speakers plus sub' version is available for stereo-only applications – the KMS 2002.

KEF Audio ☎ 01622 672261



KEF's KHT 2005 package: compact but gutsy.



See how speakers work without taking them to bits.

SUBS FROM SPACE

BLUEROOM TAKES ON THE FINAL FRONTIER

Blueroom's weird and wonderful Minipod speakers have been joined by an equally otherworldly active subwoofer. The Minipod Bass-Station will be a boon for users seeking some additional low-end welly, boasting an integral 75Watt amplifier and 250mm driver. The Bass-Station comes supplied with four single-spike Sputnik stands and is available from December at £449.

In further news from the clubby world of Blueroom, the Minipods themselves are now available in a range of iMac-style colours. The limited edition Lucente Minipod currently comes in transparent cobalt blue or translucent anthracite and has been spotted residing on the set of *The Big Breakfast*. Price is £329 per pair. Blueroom ☎ 01903 260033



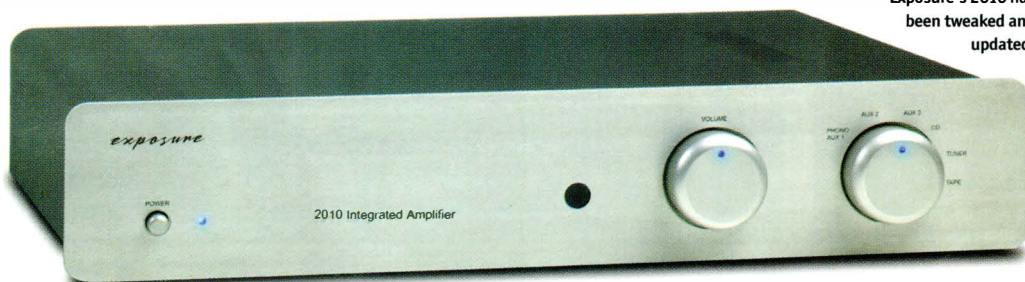
DECENT EXPOSURE

SPRUCED-UP INTEGRATED AMP TAKES A BOW

Stereo amp specialist Exposure is back with a new version of the 2010, the first product to emerge since the company re-launched in April 2000. The 2010 Titanium Remote incorporates remote controllable volume and input switching engineered to ensure no negative affect on sound quality. It is also said to sport a number of internal tweaks, apparently building on experience from production of the first model.

Priced at £600 and rated at 50 Watts, the amp is claimed to deliver Exposure's traditional sonic virtues of rhythm and timing allied to transparency and a complete lack of grain. A non-remote version is available for £100 less, and a matching CD player, tuner and power amp are set to follow.

Exposure ☎ 01273 423 877



Exposure's 2010 has been tweaked and updated.

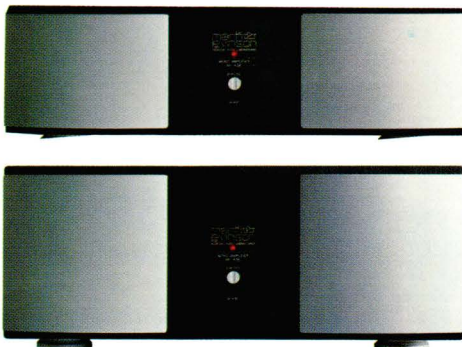
POWER PACKERS

MARK LEVINSON MONOBLOCKS FOR MORE!

Looking for some serious mono power amps, flexible enough to configure for stereo or multichannel applications? Mark Levinson's latest 400 Series amps could be the solution, provided you can afford the equally serious asking prices.

Two models are available – the No.434 at £3,995 and the No.436 at £5,795, that's each. Both are massively specified and use proprietary adaptive biasing, said to deliver the sonic advantages of a Class A output stage without incurring the thermal inefficiencies of pure Class A operation. The less costly of the two is rated at 125 Watts into eight Ohms, while its bigger brother boasts a mighty 350 Watts of continuous power.

Path Premier ☎ 01844 219000



Levinson's 434 and 436: serious gear.

IN BRIEF

price of £3,000 – a saving of £495. See next month for our review. The Standard package is still available, priced at £2,500 for CD, amp and speakers. ☎ 01273 220511

IXOS has developed a new high-end interconnect, the 10050 Ixotica. Priced at £200/1m pair, it employs a proprietary technology called 'Aptimus' – which stands for Advanced Polymer Treated Individual Multiple Strands, natch. ☎ 01844 219000

PLINIUS has added a line pre-amp to its range. The Kiwi-designed CD.LAD combines no-compromise circuitry with an all-new menu-driven display. It costs £2,250. ☎ 020 8459 8113

AUDIO-TECHNICA'S ATH-PRO6GR headphones are aimed squarely at DJs – both the professional and bedroom-based varieties. The cans are available in a camouflage finish and cost £80. ☎ 0113 2771441

THE SECURE DIGITAL MUSIC

Initiative appears to be in confusion following reports that its favoured Online music protection technology has been cracked. The organisation bravely launched a competition aimed at hackers to see if the protection would hold, but early indications suggest it didn't. However, at the time of going to press the SDMI insisted that these reports are premature.

VIDEOLOGIC'S DRX-601E, the first Digital Radio (DAB) tuner under £300, will be available exclusively from Dixons stores until 31 December. See next month for a review in our comprehensive tuner roundup. ☎ 01923 277488

SEEKING AN AUDIENCE

DYNAUDIO REVAMPS A POPULAR RANGE

Danish speaker brand Dynaudio has given its Audience range a thorough overhaul. The old line-up consisted of two bookshelf and three floorstanding pairs stretching from the Audience 40 to the 80, along with the LR120 floorstander and C120 centre speaker for multichannel applications. All these models have been replaced, so the Audience 40 becomes the 42, the 50 becomes the 52 and so on.

Changes vary from speaker to speaker; all feature new MDF front baffles, strengthened cabinets and redesigned crossovers. The range-topping 82 also employs newly developed 20cm woofers and the 72 has a taller cabinet, now front ported. Vinyl finishes have been improved, with revamped 'black ash', 'light cherry' and a white version designed to blend in with contemporary decor. The company's familiar proprietary drive units remain and the prices are identical, starting with the Audience 42 at £400.

In addition, Dynaudio has added two all-new speakers to the range – the 42W, a slimmer version of the standard 42 designed for multichannel wall mounting, and the 42C, a centre speaker intended to match. Look out for our review of the Audience 72 next month.

Dynaudio ☎ 01732 451938



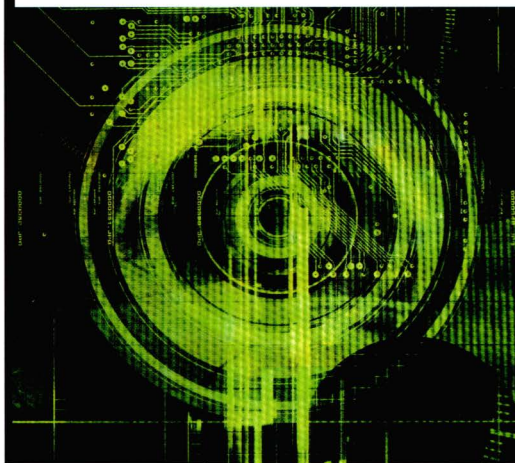
Dynaudio Audience 82: top of the pile.

HFC SAVES DVD-A!

INSPECTOR MILLER INVESTIGATES

The future of high resolution DVD-Audio looks considerably brighter thanks to *Hi-Fi Choice*, if we do say so ourselves. In an exclusive four-month investigation, *HFC's* Technical Editor, Paul Miller, has uncovered worrying anomalies in certain so-called 192kHz DVD-A demonstration discs. These discs should offer far greater resolution than ordinary CDs, but on measurement appear nothing more than 48kHz stock, 'multiplied up' to look like 192kHz material. The result is increased distortion and a sub-CD sound quality.

However, Paul now believes he has traced the problem to a link in the software production chain between recording and authoring. As a result, Technics' *Jazzport 2000* disc will now be released with a clean bill of health – in its original form it was heavily distorted. For more details see p94.



IN BRIEF

SOUNDSTYLE has modified its three-shelf XS310 A/V rack. The steel supporting tubes have been thickened to hold even the heaviest widescreen TVs and the usable height between each shelf has been increased. ☎ 01284 701101

ONKYO has launched a mini-sized CD recorder, the CDR-205X, priced at £500 and designed to match its range of mini separates. Also new is the TX-DS575X, an upgraded version of the existing '575 multi-channel receiver, priced at £450. ☎ 01788 556777



INTENSO MEDIA is a new name on the blank media scene, and to get things going it has decided to give away 100 CD-R discs to ten lucky *Hi-Fi Choice* readers. The first ten readers who write in with their name and address will win a box of 10 discs. Write to: Intenso Give-away, *Hi-Fi Choice*, 99 Baker Street, London W1U 6FP.

CROSSROADS ROTEL

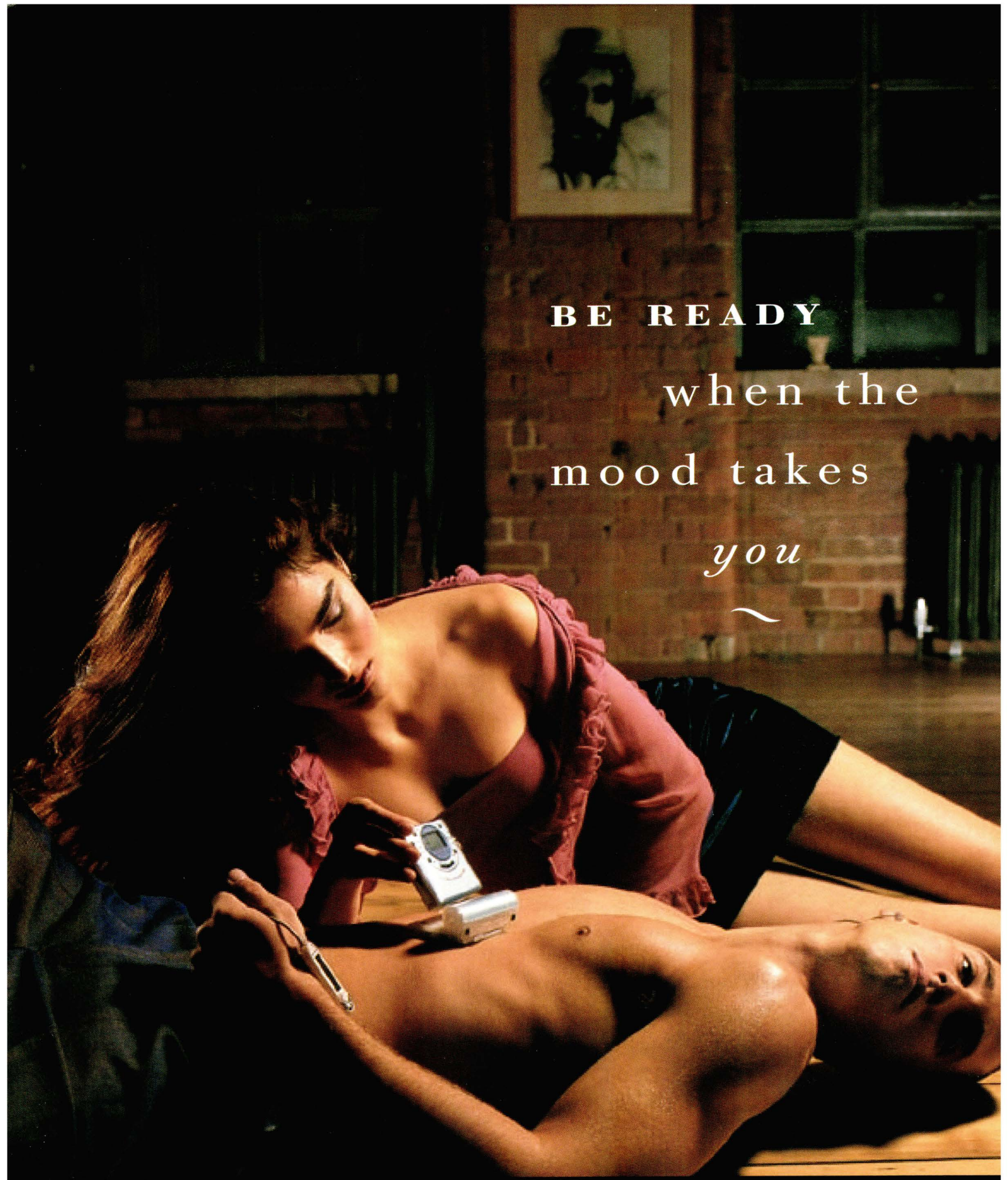
SERIOUS SURROUND AMPS FOR LESS

There's a new multichannel processor and power amp combo on the way from electronics specialist Rotel. The processor is the £900 RSP976, packed with Dolby Digital, Dolby Pro-Logic and dts decoding, together with a variety of DSP modes for music. It also offers multi-room capability – stereo sound can be controlled in a second zone via independent power, input and volume selection. It comes with a newly designed learning remote.

The processor's perfect partner is the £800 RMB1075, a five-channel power amp delivering 120 Watts per channel into eight Ohms. The units can be linked together so that powering up the processor also switches on the power amp. The combo wasn't available in time for us to test it in this special multichannel issue, but it should be in the shops by the time you read this. Gamepath ☎ 01908 317707

Rotel RSP976.



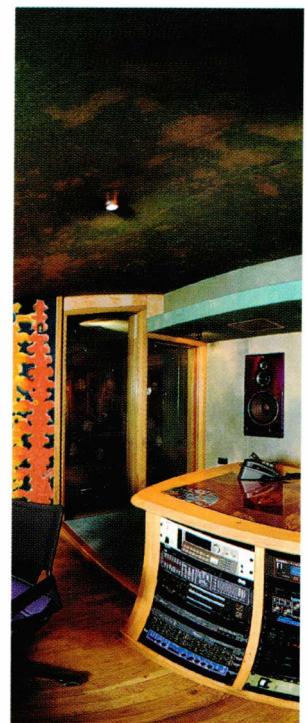
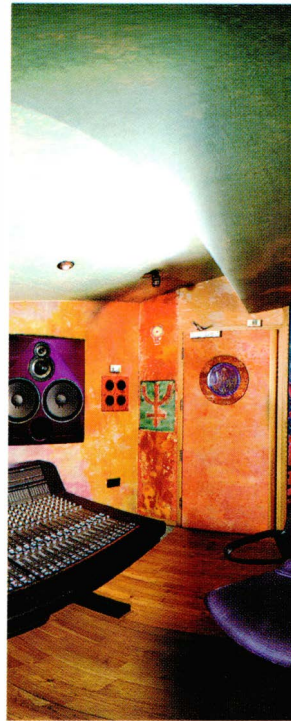


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when the
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2+3= MUSIC

SOME SAY MUSIC AND SURROUND SOUND ARE LIKE OIL AND WATER – NEVER THE TWAIN SHALL MEET. OTHERS HAIL IT AS THE SAVIOR OF THE MUSIC INDUSTRY, THE GREATEST INVENTION SINCE CD. REVELATORY EXPERIENCE OR CURATES EGG? TIM BOWERN GIVES YOU THE GOSS.

The annals of recorded music are littered with landmarks.

Take, for example, the switch from mono to stereo. The effect was profound: music was no longer flat but three dimensional and solid. Suddenly, the act of listening was much more like 'being there'.

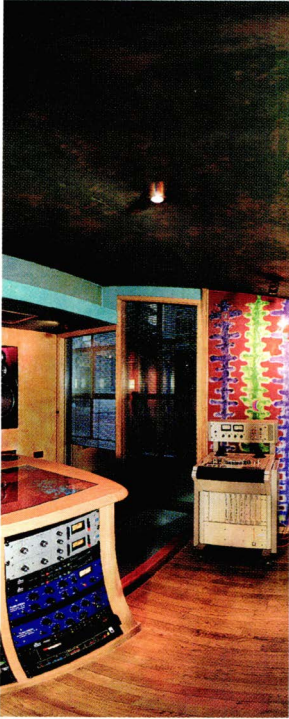
For some, 'multichannel' music is the next quantum leap. Its proposition is simple: conventional stereo uses one left and one right channel produced through two well-spaced speakers in an attempt to create a more three-dimensional illusion. Multichannel takes this several steps further, using additional channels and speakers placed around the listener for greater musical immersion. In short, even more like 'being there'.

This concept isn't new. In the 1970s, a number of intrepid sonic explorers experimented with Quadraphonic sound. The intention was to draw multi-

ple channels from a standard two-channel LP, for which several technologies were tried. Ultimately they all failed, at least partly because analogue technology wasn't up to the job.

But those involved must now feel something close to vindication. Multichannel sound is big domestic news, driven by that monster called home cinema and now finally invading the sacred realms of music. Movie blimps took to it first, wowed by its ability to draw a scene from the screen and hurl it around the room.

If the transfer of multiple audio channels from cinema to home was an obvious one, the incorporation of surround techniques into the world of music and hi-fi is fraught with difficulty. Music reproduction is a more sensitive, quality-critical area and requires a more sophisticated approach; that's not a snuffy comment, simply a testament to how our senses work.



The Strongroom studio in East London has gone in for surround sound music mastering in a big way - see our feature on page 18 for the full story.

But as digital technology has progressed, in tandem with steady penetration of home cinema systems into people's homes, so the idea of multichannel music recordings has become a viable commercial prospect. We now have formats (DVD/SACD) capable of storing vast amounts of data, and ever improving data packing techniques which enable even more information to be squeezed onto and streamed off a single disc. The result? For the first time, we have the prospect of high fidelity multichannel sound using up to six discreet channels, each at a resolution greater than that of CD.

The format promising to make all this possible is DVD-Audio, a new type of music disc that's the next step in DVD's evolution, essentially the same disc but with a greater portion of its data capacity devoted to sound. Several DVD-A/V combination players have already appeared on the market, machines able to play both DVD-Video movie discs and the new DVD-Audio music variety. We've tested three so far, from Kenwood, JVC and Technics. Thing is, no discs are yet available in the UK.

For the uninitiated, DVD-Audio offers the option of between two and six audio channels at varying levels of quality. CD's specification begins and ends with 16-bit word lengths and a sampling rate of 44.1kHz. Like CD, DVD-Audio is mastered using PCM technology but offers two-channel sound at up to 24-bit/192kHz resolution and six channels at 24-bit/96kHz. On paper the

"THE MULTICHANNEL POTENTIAL OF DVD-AUDIO HAS REALLY CAUGHT THE MUSIC LABELS' COLLECTIVE EYE"

advantages are clear, particularly for those who have always found CD sound lacking: a potential dynamic range of 144dB compared to CD's 96dB, coupled to vastly greater high frequency extension, implies that high fidelity digital sound is becoming a reality.

Not surprisingly, it's the multichannel potential of DVD-Audio that has really caught the music labels' collective eye, along with the various visual elements it makes possible: selected videos, on-screen biographies and liner notes, that kind of thing. That way they can offer the consumer something that is tangibly new and therefore easier to sell.

If DVD-Audio has put multichannel firmly on the musical agenda, one man sure to be delighted is Meridian head honcho Bob Stuart. His company has long championed multichannel sound for musical use, incorporating proprietary music surround modes in its own products in the hope of proving the point. And if DVD-Audio is a success the firm will benefit big-time: it engineered MLP, the 'lossless' data packing technology which is an integral part of the format's multichannel standard.

Though the birth of DVD-Audio has been painful, we are hopeful for the future. And with its rival, SACD, also expected to expand into multichannel in 2001, music in surround could turn into A Very Big Thing.

CAN TWO INTO FIVE REALLY GO?

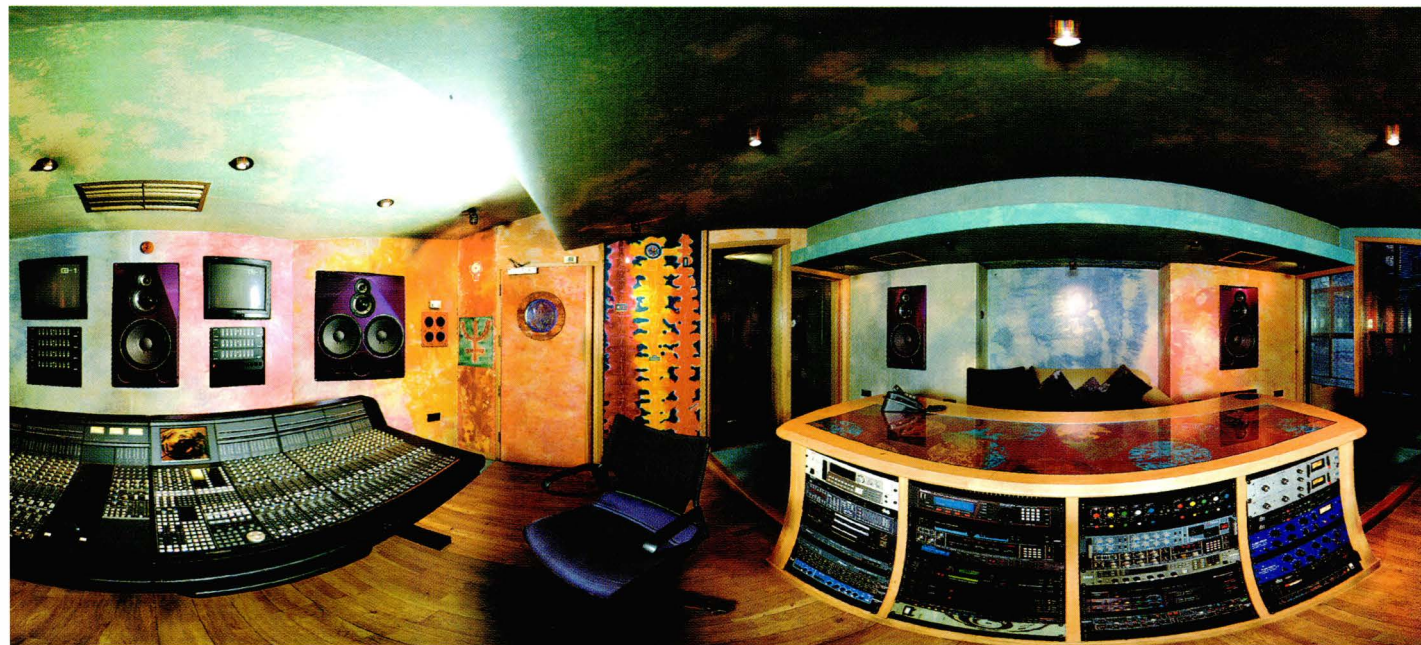
Until now, multichannel or 'surround sound' has largely

been the preserve of home cinema - a very different beast to hi-fi. The goals are different: home cinema is about visceral attack and sizzling ambience. Hi-fi, in a nutshell, is about fidelity to the original. People who want to hear music pure and unsullied, are not surprisingly sceptical.

There are plenty of reasons to doubt. The cost, for a start. For stereo music, you need two channels of amplification and two speakers. For multichannel, that increases to at least five channels and five speakers, preferably all identical to meet full musical specifications, not to mention all the additional cabling involved. That means something's got to give - either you've got to spend a hell of a lot more to obtain the same quality as your two-channel system, or you're going to have to take a significant backward step. That's clearly not acceptable, particularly for someone who has spent years building the best two-channel system they can afford. Where do they go from there?

On the whole, most multichannel amplification simply doesn't meet hi-fi standards. The majority of home cinema integrated amps are chock-full of processing and effects but crucial audio components are of poorer quality and audiophile ideals like signal purity are simply not an issue. It's a long, long way from the old hi-fi adage: simple is best.

But there have been improvements in this department. Through desire or necessity, many specialist hi-fi manufacturers are now



DD DOLBY
DIGITAL

DIGITAL
dts
SURROUND

**“THE HOLY GRAIL
WE’RE ALL CHASING
IS TO SIT IN THE
LISTENING ROOM,
SHUT OUR EYES AND
BE TRANSPORTED TO
THE CONCERT HALL”**

producing multichannel amplification, often involving separate preamps (with on-board processing) and power amps. These tend to be relatively costly but more ‘hi-fi’ in their approach, keeping processing modes to a minimum and paying attention to crucial circuitry. Some incorporate direct stereo modes, switching out unnecessary multichannel gubbins to optimise stereo performance.

So, the choice of musical multichannel amps is widening, but other practical issues remain. Like speakers. You need a minimum of five, preferably identical (they should at least match tonally). You may wish to use floorstanders but unless you’re using a wall-mounted projector you’ll have a problem squeezing one in for the centre. Most users want to put the centre speaker underneath or on top of the telly which limits them to a traditional compact horizontal model, but from a high-end musical perspective that’s hardly ideal.

Accepting that it’s happening, and that we can find a way around the practical issues, is it something we

should actually aspire to on hi-fi grounds? Supporters of multichannel music talk about holographic soundstaging and true to life acoustic soundfields, about a listening experience much closer to the real thing. Sound, they say, doesn’t just come from in front of you when you’re at a gig or in a concert hall. It hits you from all sides.

It’s not hard to imagine how some carefully placed crowd ambience from the rear can heighten that ‘being there’ sensation with a live recording. Or how creative-minded bands in the electronic field could make imaginative use of the additional channels laid before them. But right now, the majority of multichannel discs available are crude translations from existing stereo recordings, remixed with scant regard for high fidelity realism.

Another thing to consider is whether multichannel delivery actually suits the way we listen to music. Watching a film is a fairly intense experience, a relationship between you and the screen. But music tends to be a more sociable affair,

contrary to the all-engulfing surround sound experience. And, if multichannel music talk about holographic soundstaging and true to life acoustic soundfields, about a listening experience much closer to the real thing.

Sound, they say, doesn’t just come from in front of you when you’re at a gig or in a concert hall. It hits you from all sides.

So what do the manufacturers think? Steve Reichert, Brand Manager for Arcam, is positive about a DVD-Audio future. But it’s the potential resolution that grabs him, not the multichannel specification.

“The Holy Grail we’re all chasing is to sit in the listening room, shut our eyes and be transported to the concert hall. We get closer every year and DVD-Audio can move us so close it’s frightening. But if multichannel dominates it could snatch defeat from the jaws of victory.”

He continues: “If I’m listening to a concerto, I don’t want a violin coming from behind me. I don’t want to feel I’m sitting amid an orchestra – it sounds crap there!”

Arcam is fully behind DVD-Audio and is in the process of expanding its multichannel range. Given Reichert’s comments, why is such a music-oriented specialist



Sony's vision of a modern 'living' room with five of the SS-M9ED loudspeakers it developed specifically for SACD.

keen to get involved?

"Because we live in the real world," says Reichert. "All the current industry growth is from multichannel gear. We just make sure our kit does the music thing too."

Not surprisingly, the Product Information Manager for DVD-Audio protagonist Pioneer is a little more switched on to multichannel possibilities. His name is John Bamford and he's a confirmed audiophile.

"Creative artists will love it. Pink Floyd would have given their eyeteeth for this and modern recording artists will embrace it for sure. It's just ironic that the first people to enjoy DVD-A will be home cinema buffs, not hi-fi folk."

He finishes by painting an imaginary conversation of the future, a future where CD and DVD-Audio versions of the same album sell side by side.

"Have you got the new Madonna CD?" asks friend A. "Bugger that!" says friend B. "I've got the DVD! It's got 5.1, stills, a video..."

SOFTWARE SCENARIOS

So, where is all this new multichannel software? SACD is currently two-channel only and DVD-Audio has been famously delayed by problems relating to its copy protection system. However, the first titles are finally on their way: Warner released seven DVD-A discs in the US on November 7th, ranging from Beethoven to Stone Temple Pilots. The Corrs' latest album *In Blue* will appear a few weeks later and other scheduled releases include Miles Davis, The Doors and Fleetwood Mac. Price is expected to be \$24.99.

All titles will include a DVD-Audio specific Advanced Resolution multichannel mix and a Dolby Digital 5.1 mix which will play back on standard DVD-Video players. The four other major labels – BMG, Sony, Universal and EMI – have all talked about supporting the format in one way or another but none have yet announced launch details.

As we wait with baited breath, multichannel music continues to appear on older formats – DVD-Video and even CD. These discs use one of two rival surround encod-

ing systems employing 'lossy' compression to squeeze in the data: Dolby Digital and dts.

DD software is much more common in the UK, but dts has a higher data rate which is generally considered superior for music. However, qualitative differences between discs will be influenced more by external factors than the core coding technology employed.

DVD-Video music titles are growing in number. All feature some form of visual content, but this can vary from a few stills to full-length video footage. Many are simply material used for existing VHS video titles, but the proportion of content created specifically with the format in mind is gradually growing. If you want multichannel, look out for '5.1' on the back of the box – just because it says Dolby Digital on the back it doesn't mean it's in surround. Make sure your system has the necessary processing to decode whichever system is used, be it Dolby Digital or dts. It's also worth checking the box for a "linear PCM stereo" audio track – this is CD quality and tends to be a more

detailed and dynamic-sounding option, though not encoded in surround.

Multichannel music CDs have been around longer than DVDs, and though their profile has been low there are several dts-encoded discs that are really quite impressive. If you have a processor etc you can play these on any CD (or DVD) player with a digital output.

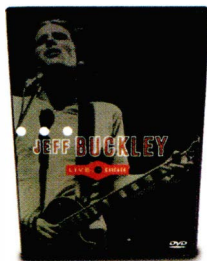
As the wait for DVD-A titles continues, there's a danger that DVD-V will become the dominant mass-market multichannel music format. London's Strongroom studio is a leader in that respect, playing host to some exciting multichannel projects. That's where the Dolby Digital Underworld DVD was produced and forthcoming releases include dance acts BT and Orbital. These guys are more excited about the video potential of DVD-V, mixed with 5.1 multichannel sound, than they are about higher resolution DVD-A. Ask Underworld's Rick Smith about DVD-A and all you'll get is a shoulder shrug. "Besides, I rather like Dolby Digital," he says. "It really kicks you in the guts."

The future still isn't clear. Recently, dts announced its intention to promote a 24-bit/96kHz version of its technology. This, it claims, will rival DVD-A for sound but can be included on music or movie DVD-V discs – playback on an ordinary DVD player and you'll get ordinary dts, but use a new generation machine and you'll get the additional 48kHz.

Whichever way it goes, if artists, music labels and hi-fi manufacturers apply the technology with imagination and sensitivity, multichannel might just be the biggest thing to happen to music since the advent of stereo.

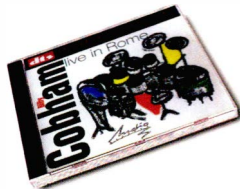
MUSIC IN SURROUND

TIM BOWERN ASSESSES THE NEWEST AND MOST VITAL MULTICHANNEL MUSIC DISCS.



JEFF BUCKLEY
LIVE IN CHICAGO
SONY – FORMAT: DVD-VIDEO
AUDIO: DOLBY DIGITAL 5.1;
LINEAR PCM STEREO
RATING ★★★★★

CONTENT: The devil hissed with triumph the day Jeff Buckley died: a searing sonic flame was extinguished from the world. If you've yet to discover his worth we suggest you pick up a copy of his *Grace* album post-haste. Once you're hooked you may then consider this DVD – a live audio/visual recording that pits his musical strength against personal vulnerability. **SOUND:** Some of that guitar-drenched strength is drained by the video – music can be so much more powerful without pictures – yet crowd ambience on the 5.1 mix does enhance that 'being there' feeling. The PCM stereo mix sounds more vital and dynamic. **EXTRAS:** Two bonus tracks, a discography and a previously unreleased electronic press kit including rare interview footage.



BILLY COBHAM
LIVE IN ROME
TWEEDELE MUSIC – FORMAT: CD
AUDIO: DTS 5.1
RATING ★★★★★

CONTENT: For those who don't know, Cobham is a jazz-rock soaked drummer responsible for some choice musical nuggets, including the groove on which Massive Attack's *Safe From Harm* is based. This disc sees him in full jazz flight; I find it a bit noodly, but 'accomplished' is probably the word. **SOUND:** Cobham was involved in the remix to 5.1 and it's obvious that much care has been applied. The front/rear interface is more seamless than most and the overall sound field is unusually cohesive, if lacking a touch dynamically. **EXTRAS:** none.



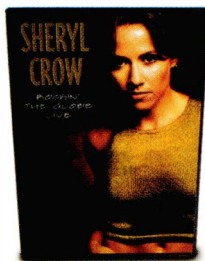
UNDERWORLD
EVERYTHING, EVERYTHING V2 – FORMAT: DVD-VIDEO
AUDIO: DOLBY DIGITAL 5.1; DOLBY DIGITAL STEREO
RATING ★★★★★

CONTENT: Electronic alchemists Underworld captured during their 1998/99 tour, stepping on the gas through 90 minutes of live digital hedonism. Sound intense? It is. **SOUND:** Electronic soundscapes suit multi-channel to a tee – adding more channels just increases the creative scope. Underworld put a lot of time into getting this one right and it shows: the multi-channel mix is unusually sympathetic. Jack the volume and it's massive. **EXTRAS:** An inventive selection: you get the choice of live or abstract video footage to watch with the soundtrack, plus two bonus tracks, outtakes and interactive DVD-ROM material.



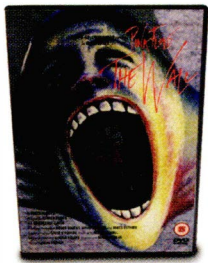
RADIOHEAD
MEETING PEOPLE IS EASY
PARLOPHONE – FORMAT: DVD-VIDEO
AUDIO: DOLBY DIGITAL 5.1; DOLBY DIGITAL STEREO
RATING ★★★★★

CONTENT: A trawl through the tunneled life of Radiohead, post-*OK Computer*. Live and studio recordings are interspersed with raw video footage, mostly black and white. Bold contemporary vision or post-modernist twaddle? Hmm. **SOUND:** There's music here you won't have heard before, but much of it sounds like it's played through a telephone and 5.1 surround adds little worth. For the music, stick to the CDs. **EXTRAS:** As bleak as the film-making. The disc isn't even split into chapters... but maybe that's the point.



SHERYL CROW
ROCKIN' THE GLOBE LIVE
A&M – FORMAT: DVD-VIDEO
AUDIO: DOLBY DIGITAL 5.1; DTS 5.1;
DOLBY DIGITAL STEREO
RATING ★★★★★

CONTENT: If you like a bit of Shezza you'll dig this. The multi-million selling country-pop songstress gets her guitar out for the lads and lasses, then strums her way through a comprehensive set in front of an appreciative crowd. **SOUND:** This is all relatively accomplished for a commercial DVD disc and made more interesting by the inclusion of both Dolby Digital and dts 5.1 soundtracks. The dts version has a little more life to it, although both sound a little cold and flat compared with a two channel CD. But stereo CD rarely wraps you in live ambience like this can. **EXTRAS:** none.



PINK FLOYD
THE WALL
SONY – FORMAT: DVD-VIDEO
AUDIO: DOLBY DIGITAL 5.1; SURROUND-ENCODED PCM STEREO
RATING ★★★★★

CONTENT: There's something unfathomably stirring about the way Parker and Scarfe's film melds with the band's music. This remastered version makes it all so much more intense. **SOUND:** Rear channels are a bit hissy but it's a skillful transfer to 5.1 – neither undercooked nor overplayed. It's grippingly dynamic, and when the music crashes in it's hard not to be impressed, even if you think it's a load of prog-rock nonsense. **EXTRAS:** Includes a documentary, subtitles, a running commentary, stills gallery, theatrical trailer, speaker set-up tips...

MULTICHANNEL CLASSICS

BEETHOVEN/CHOPIN
SYMPHONY NO. 3/PIANO CONCERTO NO. 2 DENON

This was the first DVD music release in 1997. Classical music can be effective in Dolby Digital 5.1, although it loses some resolution and dynamic contrast.



EAGLES
HELL FREEZES OVER GEFREN

If you've ever been to a hi-fi show, chances are you're already sick of this disc – particularly the opening to *Hotel California*. But if you want to hear how just good dts 5.1 music can sound, this is the disc for you.



KING CRIMSON
DEJA VROOOM
DISCIPLINE GLOBAL MOBILE

Even if you don't dig 1970s prog-rock this disc is impressive. Well executed Dolby Digital/dts surround and a whole host of imaginative extras show how much can be achieved with the DVD-Video format.



LYLE LOVETT
JOSHUA JUDGES RUTH MCA

A superbly produced dts CD from one of New Country's sharpest wits. It's not quite up with the vinyl version, but an impressive advertisement for music in surround.



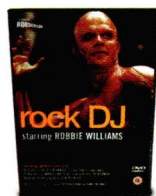
METALLICA
CUNNING STUNTS POLYGRAM

These cheeky multi-millionaire metal types produced something of a rock DVD-Video benchmark with this two-disc live set. The footage is as polished as the packaging and Dolby Digital 5.1 swells its shiny sound with aplomb.



ROBBIE WILLIAMS
ROCK DJ CHRYSALIS

DVD singles let artists experiment in a shorter format. This one shows how effective multi-channel mixing can be with pop, provided you can stomach the sight of Robbie ripping off his own flesh and lobbing it towards assorted girls. True.



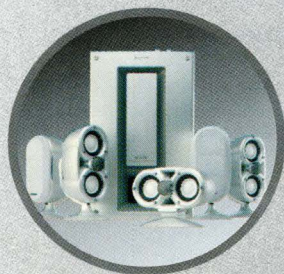
For high performance sound you don't need
as much space as you think.



PASCAL

Try Sony's award-winning Pascal speakers for size. 50 years of audio expertise condensed into a sleek case measuring just 86x169x130mm. Small. Perfectly formed. Yet beneath that cool aluminium surface beats a heart of pure fire. The world's strongest magnet, Neodymium, delivers enough drum and bass (and violin and flute) to make all of your crystal ornaments rattle. They're the perfect little speakers if you want to get the most out of your music and movies. You may have limited space, but why have limited sound?

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SONY

The future of music?

DAVID VIVIAN HAS SEEN THE FUTURE OF THE ROCK ALBUM AND IT LOOKS LIKE IT'S GOING TO BE ABOUT A WHOLE LOT MORE THAN JUST THE MUSIC.

I'm locked in the Strongroom, but escape is the last thing on my mind. If a hardware addict can't get a fix here, arguably London's coolest independent high-end music studio, he's in trouble. There's something about these places, a uniquely tasteful vibe. Sublimely modern Apple Mac G4s and Powerbooks – the best mixing desk jewellery – strike intriguing contrasts with now still multi-track behemoths from the age of analogue tape. A dab of art, nice carpets, sleek lighting, a classy bar/restaurant on site. Clearly it's hell on earth for the dozens of producers, engineers and technical staff who work here. Amazing how they manage to put such a brave face on it.

Do you like big speakers? Here in Strongroom 2 (the really rather fabulous 5.1 mixing studio) five monsters are sunk into the walls like cashpoints: bomb-proof build quality, woofer cones the size of dustbin lids – £150,000 if you fancy getting a set for your living room. Believe me, you will fantasise. Never mind the Euphonix CS3000 console with its complete automation and 96 inputs. Hang the tiddly Genelec 1029 nearfield monitors and racks of Dolby Digital encoders. They've done their job. All that matters today is playback, pure and simple. I am here to witness, at what should be an impressively high volume, one man's idea of the future of the rock album: DVD.

No, not DVD-A. We're talking plain DVD with video, a Dolby Digital 5.1 soundtrack and some ROM content – really no different to your common or garden feature film. The controversial nub of the matter is this: higher aural fidelity is not the big deal. Reinforced by the video images, using 5.1 to more convincingly recreate the performance space and ambience most certainly is.

Creative core and 'CDJ' component of the UK electronic dance combo Underworld, Rick Smith believes it. He believes it so strongly he's here to prove that cramming 90 minutes of live concert footage, a parallel artwork track that can be viewed instead of the concert footage and a high degree of interactivity (including a daily-changing Internet link) – what he describes as “the most difficult thing I've ever done” – has

been worth the Herculean effort. *Everything, Everything* is the name of the DVD – and, as it turns out, the answer to the question Smith asked himself during the many late nights in the studio: what else can go wrong?

The project, which kicked off more than two years ago, represents an almost unprecedented meeting of minds and methodologies. Back in 1994, Strongroom took the plunge with DVD and built this dedicated 5.1 mix room and a Dolby Digital, dts and MLP encoding studio. It now embraces the whole DVD caboodle, from mixing scores to soundtrack conforming and synching language tracks and directors' commentaries.

The one-stop service is further enhanced by Strongroom's partnership with The Pavement, which has on-site facilities and specialises in project management, interface design and authoring. Clients include BBC Worldwide, MGM, Pathé, Polygram/Universal and VCI.

BEAUCOUP MIX

When Smith decided, while on the M25 one day, that DVD was the way ahead for Underworld, he knew where to come. After all, it wasn't as if these guys were unacquainted with the power of technology given their entirely plugged-up take on making music. A few extra plugs, some more microphones and surely Bob's your uncle?

Smith sighs. “We mixed this record probably three times from beginning to end. The first time we mixed it we had lots of stuff flying around in the rear speakers. But essentially this is a live concert and it felt unnatural. I don't know how to explain it... it just didn't sit very well. So we did it again and again. But stuff which is purely electronic seems to work beautifully in surround, so I'm looking forward to the next studio album...”

Obviously quite a steep learning curve.

Another shot glance (this time incorporating an ironically raised eyebrow). “It was really tough at times, extremely stressful. Even until yesterday, what with the Internet stuff and the DVD-ROM section. Up until the day of release we were pulling our hair out.”

Smith's admiration of the DVD medium was forged by watching films: he's a big fan of *The Matrix* as a showcase production. He wanted to stretch the format in other directions, though.

“DO YOU LIKE BIG SPEAKERS? HERE FIVE MONSTERS ARE SUNK INTO THE WALLS LIKE CASHPOINTS – £150,000 IF YOU FANCY GETTING A SET FOR YOUR LIVING ROOM.”



David Vivian drives fast cars and appreciates the finer things in life - like designer lap-tops and big speakers.



“EVERY DAY THERE’D COME A MOMENT WHERE WE’D KINDA GO: ‘SOD IT, STOP CARING FOR A SECOND AND JUST PUT IT ON AND TURN IT UP ON £150,000-WORTH OF SPEAKERS...”

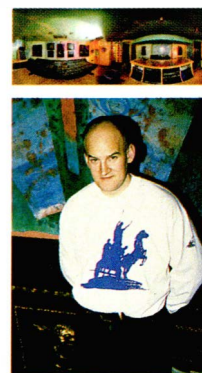
“We didn’t want to go the cinema way. A voice is usually put in the centre speaker – we didn’t want to do that. In home cinema set-ups, all it takes is for someone to have the centre speaker wrong and the whole thing doesn’t sound right. We needed something cast iron. There’s a button you use to select 5.1 or stereo. All along we had to work to the idea that if someone pressed the wrong button, it would fold down immaculately. So, in a sense, the stereo mix almost became redundant because we spent so much time making sure the fold down was right.”

LOST IN MUSIC

But what about the music? “It’s like when I buy DVD films. If I like the film, then the extras don’t matter as much. Which is cool because it should be about the content. It’s got to be about the movie, about the music. The next studio album I really hope to mix in surround. Because we learnt so much, I don’t think it would be so much of a challenge, more a pleasure... it would be good to enjoy the format again.

“You can imagine, some of these tracks we listened to thousands of times. There were moments when it was really quite painful, like the worst kind of headache... having to listen to it again and again. Every day there’d come a moment where we’d kinda go: ‘sod it, stop caring for a second and just put it on and turn it up on £150,000-worth of speakers. Don’t think about who’s going to listen to it, just enjoy the moment.’ It was fantastic. I find, even now, as long as I haven’t seen it for a couple of weeks, I really enjoy it.”

So, to finish, we listen to *Everything, Everything* on £150,000-worth of speakers and turn it up loud. It sounds awesome, truly the next best thing to being there. When it comes to capturing that big stadium atmosphere, plain stereo just doesn’t cut it. At least not in the Strongroom. Whether you like Underworld’s music or not – I do even more than I did, a good sign – there’s no denying Rick Smith is onto something. The future of the rock album? Who knows? For the time being, though, Underworld has taken centre stage.



Top: Underworld (Karl Hyde and Rick Smith) see a bit of daylight. Above: Rob Buckler, the Strongroom MD, with his drool-inducing 5.1 mixing facilities.

ONE FOR ALL

TECHNICS' DISC PLAYER FOR ALL SEASONS CAN HANDLE DVD-AUDIO, DVD-VIDEO AND CD – AND HANDLE THEM WELL.



a

gainst early speculation, it's the Sony and Philips alliance that's ahead in the race to establish a definitive 'high-end' audio format for the future. This format is SACD or Super Audio CD, the rival to DVD-Audio which, to my mind,

could have won the advantage if only it was launched early enough to capitalise on the market penetration achieved by DVD-Video. Nevertheless, DVD-A's chief protagonist – Technics – is clearly banking on this association to quickly establish its 'combi-DVD' player.

At £899, the DVD-A10 looks, feels and weighs every inch the audio/videophile machine – thanks, in part, to the heavyweight 'hybrid' baseplate culled from earlier CD players. Its champagne gold styling is traditional, at least in Japan, while the blue uplight strips would certainly not look out of place in a Tokyo sushi bar. Around the back, a combination of SCART, composite and S-Type video outputs are provided with two-channel analogue outputs and 5.1-channel analogue outputs to service every type of DVD-V and DVD-A disc. The latter are driven by on-board Dolby Digital and dts decoders with six channels-worth of 96kHz/24-bit DACs, while a pair of 192kHz/24-bit converters are implemented to deal with DVD-A's high resolution stereo format.

The player will handle CD, DVD-V and DVD-A discs together with most CD-RW discs, despite it saying otherwise in Technics' specification. CDR and Photo-CD discs are strictly off the menu, however. The DVD-A10 may only be set-up and maintained via its on-screen menu which offers

an array of specialised programming options, including the ability to 'mark' favourite points on a DVD. It's possible to trim the level and delay of all multichannel outputs and permit the downsampling of 96kHz material to 48kHz for the optical and coaxial digital outputs. Unlike Pioneer's DVD players, the DVD-A10 will not output 96kHz data directly, while DVD-A's 192kHz audio is accessible in analogue form only.

There's no indication of sample rate (44k for CD, 48k, 96k or 192k for DVD) and, despite it being an element of the DVD-A standard, no MLP logo to demonstrate that five-channel 96k/24-bit discs are decoded appropriately. Instead, you'll see a new indicator called 'PPCM' which stands for Packed PCM. This, I assume, is a sideways reference to the Lossless Packing technology engineered by Meridian (hence, MLP) that's used to squeeze full 96kHz/24-bit data onto 5.1 channels of DVD-A. Whether the DVD-A10 will recognise watermarked DVDs released in the future is a moot point. The worse that might happen is a refusal to play the discs outright...

Meanwhile, Technics is happy to plug its own technology, though the 'Re-Master' widget that's designed to 'enhance' the performance of two-channel CD did not work reliably or, indeed, beneficially according to my laboratory tests. As it's set as default, you'll need to access the on-screen menu where, alongside features like dynamic range compression, pan-and-scan/letterbox TV modes, still picture display and an NTSC disc output facility, there's also the option to set or remove analogue audio 're-mastering'.

Otherwise, the technical performance of the DVD-A10 is pretty sharp. Distortion is very low at

REVIEW PAUL MILLER



“THE DVD-A10 HAS AN EASY-GOING LIQUIDITY WITH A SOUND THAT’S VERY NATURAL AND UNOBTRUSIVE”

0.0008per cent through the midband in either CD or DVD mode, increasing to 0.009per cent at 20kHz and 0.02per cent as far up as 45kHz in DVD mode only. The response shows a slight brightening effect, though with a +0.9dB boost at 40kHz, only a bat would spot the difference.

The signal-to-noise ratio of 106dB is still far short of the 140dB promised by DVD-A because it’s dictated by Technics’ analogue filter and output circuits rather than the digital technology. Indeed, this figure stays the same with both CD and DVD software, and is a good few dB behind what’s possible from today’s CD players. Nevertheless, it’s good to see that Technics’ has got a grip of digital jitter – a potentially disastrous form of distortion that’s blighted many DVD players – reducing the figure to just 230psec. This is at least 10 times lower than with earlier Technics/Panasonic DVD players.

SOUND QUALITY

Naturally, we were all eager to experience the potential benefits of DVD-A’s wide bandwidth (up to ~90kHz) and high resolution (24 bits) but, as I described in my column (HFC 206 and this issue), much of the existing 192kHz software remains corrupted. In fact, of my 10-disc collection only one has genuine 192kHz tracks!

However, the real thing can sound very special indeed. In fact, the jazz track *Broadway* off this Matsushita-sourced disc told us more about the microphone technique and placement of the musicians during the jam session than what the player was doing! On the one hand, it’s like buying a new and better TV to see the lighting faults in the News studio. On the other, you’ll get to

enjoy an easy-going liquidity with a sound that’s very natural and unobtrusive, conveying the enthusiasm and humour of the musicians. I’ve yet to hear DVD-A match the depth and transparency of sound possible from SACD, but these are very early days and there’s still plenty of room for manoeuvre on the part of both camps.

As a CD player, the DVD-A10 was described by our panel of listeners as “mellow but not terribly extended, the bass is warm but not especially deep or penetrating while the extreme treble lacks a certain air”. Well, it’s their job to be critical. Our Cassandra Wilson test track sounded as forward and intense as ever but there was an occasional spiky ‘lisp’ to her sibilants. Otherwise, the performance sounds usefully broad, if not especially deep, but still sufficiently spacious not to impede a good sense of dynamics and detail. Indeed, taking a broad view, the DVD-A10 is rather more adept than this description implies.

CONCLUSION

At £899, the DVD-A10 represents solid value and, compared to the uneventful sounding players to emerge from the Technics stable in recent years, is certainly the best CD player on its books. Which just goes to show that the role played by quality analogue engineering is as important as ever. Of course, it’s a little cool and detached-sounding compared to the best at £1,000, but then the DVD-A10 also plays 192kHz audio – or will do when the software houses get their act together – with pictures to boot. And it’s in this guise, as a multi-format digital carrier, that the DVD-A10 has no serious competition.

£899.99 Panasonic UK Ltd ☎ 0990 357357



Technics’ DVD-A10 is one of the first truly notable ‘combination’ players to arrive. It’s ability with CD, DVD-Video and DVD-Audio is impressive – and great value at under £900.





THE GIFT OF SOUND AND VISION

DON'T YOU WONDER SOMETIMES — IS IT POSSIBLE TO FIND AN AMP THAT CAN HANDLE STEREO AND FIVE-CHANNEL SOUND?

h

REVIEW ALVIN GOLD

ere are the basic vital statistics. Primare A30.5 power amplifier: 5 x 120 watts into 8 ohms, or 5 x 200 watts 4 ohms. Primare P30 A/V processor: stereo, Dolby Digital, dts and a small number of acoustic effects, namely Stadium,

Club, Natural (don't ask) and Party. Audio inputs: seven analogue unbalanced plus a single balanced XLR, and five coaxial electrical digital and two optical digital. Video: four composite and three S-Video. Outputs include a pair of balanced XLRs for stereo signals, and a selection of analogue and digital sockets, plus data and RS232 interfaces. Display: green fluorescent, showing volume, source and selected sound process, can be dimmed or switched off. And the remote control is barely more button bound than an ordinary CD handset. Prices: £3,700 for the combination.

Any surprises here? It's a fairly standard specification for a home cinema amplifier, but score a point if you noticed that power output from the power amplifier output is claimed to almost double into 4 ohm loads. This is what usually happens with high class stereo amplifiers. It

almost never happens with multichannel AV amps, but very few are built like this one, with separate transformers and power supplies for each channel.

There are other little surprises too, of which the most striking is that stripped bare fascia on the P30 processor. Whoever heard of a home cinema processor with just two rotary controls and four little buttons? Never mind that; where did you ever see such a drop dead gorgeous home cinema amplifier, anywhere? There are very few stereo amps that can hold a candle to the P30, and several of those say Primare on their front panels, and the P30 and A30.5 are as well built as they are styled. The A30.5 is even more stripped down, but this is par for the course with stereo power amplifiers. For the record though, there are no visible controls at all. Just a rocker stand-by switch under the left-hand fascia, a standard Primare feature designed to encourage leaving it switched on.

The on-screen menu system is easy to drive, but as an alternative there is an automatic speaker level set-up using a supplied microphone, though it doesn't go as far as the Cyrus AV5 by also working out speaker distances (see p43).

As the group test documents, there are few home cinema amplifiers that can hold a candle to a decent hi-fi amplifier. But here is a welcome



The P30/A30.5 combo – as adept with multichannel sound as it is with stereo.

“THERE IS A SWEETNESS AND PURITY ABOUT THE SOUND – AND THESE QUALITIES ARE RETAINED IN MULTICHANNEL MODE.”

exception. There is a true bypass mode that avoids any digital processing for stereo sources, and in this mode the A30.5 is essentially the equal of Primare's own stereo integrated amps, which are very good indeed, as we have had cause to discover in the past. There is a sweetness and purity about the sound, which is perceptibly rich tonally, perhaps the result of a slightly rounded off extreme treble, but the bass is solid, the midband layered and articulate and there is plenty of musical definition. Female vocal (e.g. Lorna Hunt's *Long Hard Road*) has an ardour and rightness that is suggestive of the real thing.

The real strength of the combination however is that these qualities are retained in multichannel mode. With digital inputs, there is very little detectable diminution of sound quality, and the Primare made excellent use of a range of movie soundtracks, including some of the better Dolby Digital recordings like *Contact* and *The Matrix*. Both these films showed the Primare's ability not just to drive images around the soundstage, but to create a large image space within which the action happens. The Primare 'breathes', and most don't.

Better still was sound quality from the dts recordings available for test. These included extracts from *Saving Private Ryan*, and a number of musical extracts, including the *Mahler 2* that

was used as a standard test piece in the multichannel amplifier test referred to earlier. Again, but to an even greater degree, it was the way that the Primare made a performance from the raw data on disc that impressed, and there were moments that truly made the hairs on the back of the neck stand on end. There was a very real, very palpable sense of presence that had nothing to do with a forward midband or anything so crassly mechanistic, and the music had a solidity and drive that made for an almost uncomfortable realism.

Yes, there are some limitations. There is no 5.1 channel input for DVD-Audio or SACD and the processor video section does not stretch to RGB or component video, which could be missing a trick. On the processing side, the principal omission is any form of 7.1 channel operation, THX Dolby EX for example, though in practice this is perhaps less significant than the protagonists of 6.1 and 7.1 channel sound would have you believe. The point about this combination however is not what it does, but the style with which it does it, and in this there can be no complaints.

P30 £1,999.90, A30.5 £1,699.90

CSE ☎ 01423 359054

b

&W's top-of-the-line Nautilus 800 Series has been a big success all round the world, with both stereo and multichannel consumers. This very extensive range starts off with five basic stereo models, from the big Nautilus 801 through to the standmount Nautilus 805, to which surround sound enthusiasts can

REVIEW PAUL MESSENGER

add one of two dedicated centre-front speakers. The surround channels can, of course, be supplied by any of the regular stereo pairs.

For this Statements review, we elected to go with the three-way Nautilus 803 (£3,500/pair) for the main front left and right channels (partly because *HFC* hadn't actually got around to reviewing this model before), while the mildly monstrous £1,500 Nautilus HTM1 takes centre-front duties. The surround channels are handled by the £1,500/pair Nautilus SCM1, a relatively new introduction to the series which effectively repackages the N805's ingredients in a more curvaceous but less deep enclosure of similar volume, with bass end realignment to take account of close-to-wall mounting, and brackets for on-the-wall mounting.

Curvaceous is maybe not quite the right word for these speakers, as it somehow implies voluptuousness, whereas these follow a subtle and discreet aesthetic. Only the bases and front panels are flat, whereas the gently domed top and the continuous wraparound sides/back, all finished in lovely black, cherry or red cherry real wood veneers, seemed distinctly tactile. Visitors just couldn't resist stroking them – or enquiring what the little thingummies on the top were.

As left/right stereo speakers go, the N803s look elegantly slim and relatively compact, especially

considering their very impressive performance envelope. The SCM1 is about as small as it's possible to make a genuine 'full range' speaker without obvious compromise (or active drive). But the HTM1 is a monster of a centre-channel device. I use the largest CRT TV set on the market, a 36-inch Panasonic widescreen model, and the HTM1 is only a couple of inches narrower – and isn't that much shorter in height, either. It would sit more easily on top of a larger rear-projector to be sure, but it still makes a very emphatic statement about the user's obsession with home cinema sound quality.

The thingummies are, of course, B&W's external tweeters, long a familiar feature of the company's more upmarket models, but which have recently evolved from a simple 'bump' into a rather more stylish, streamlined affair, with a tube several inches long loading the rear of the tweeter's metal dome diaphragm. The advantage of external mounting is both to permit fore-and-aft time-alignment of the tweeter with respect to the midrange voice-coil, and to make the tweeter as small a source as possible, avoiding the baffle-edge discontinuities created by conventional cabinet mounting.

The driver line-up for the N803s is the same as that used in both the much less expensive CDM9-NT and the rather more costly Nautilus 802. The differences lie in the enclosures. The slab-sided CDM9-NT enclosure is clearly much cheaper to manufacture, and also lacks the internal 'Matrix' stiffening found in the full bore Nautilus range. This N803 saves costs compared with the N802 by mounting the midrange driver conventionally within the main enclosure, rather than in the massive 'teardrop' head used by N802 and N801.



FIVE POINT PLAN

EVER WONDERED WHAT A ROOM FULL OF NAUTILI SOUNDS LIKE? WELL WE DID, AND THE RESULT WAS IMPRESSIVE – IF A LITTLE AHEAD OF ITS TIME.



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terminals for optimum signal transmission.

The gorgeous new front baffles are contoured to eliminate edge diffractions, and finished to match the cabinets* in Natural Cherry, Dark Apple or Black Ash.

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Q
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◁ From a drive unit point of view, the midrange is the most interesting device, because it eschews any sort of cone surround in the accepted sense. Instead of attaching a rubber ring to the edge of the cone and to the frame, this Kevlar-cone has a 'free edge', albeit one that rests against a foam rubber damping ring attached to the frame. Traditionally the surround has twin roles of damping cone edge vibration and keeping the cone properly centred under excursion. B&W avoids the double role by just using this device as a midrange driver, so it has very small cone excursion, and the 'ring damper' can be used purely as a vibration terminator. The bass drivers are classy affairs, with cast frames and paper cones, the latter considerably stiffened by an over-sized carbon fibre dust dome.

The HTM1 shares the same midrange and tweeter as the N803, and very similar but slightly smaller twin bass drivers too, all mounted in a slightly smaller sealed-box enclosure. The SCM1 is a simple port-loaded two-way, very slim from front to back to assist wall mounting, and with a rather shorter tweeter tube to match. The Kevlar main driver covers bass as well as midrange.

The only thing I didn't like about these speakers is the nasty terminals that B&W has chosen to fit. No doubt in a fit of paranoia about Brussels bureaucrats, these are exceptionally unfriendly towards the 4mm banana plugs which remain the UK standard. Normally it's relatively easy to remove the blocking plugs, but not here, and not without risking damaging the terminal.

The N803's in-room averaged balance was pretty close to what I expected in the light of previous tests on the N801 and N805. The broad midrange is very flat indeed, the presence region a little laid back and restrained, while the treble proper is a touch exposed. In our medium size room the N803 was just right in the bass, with exceptional depth to boot. The HTM1 is a pretty good match for N803 through most of the band, and avoids any 'honk' from being placed next to a large TV screen. However, it is rather more 'forward' in the presence region, which will tend to 'sharpen' the sound of voices.

SOUND QUALITY

This Nautilus system was auditioned in both stereo and surround sound modes, using both my regular Naim and Linn stereo source components, and additional equipment brought in to do the surround sound thing. The latter included a Pioneer DV-717 DVD player, a TAG McLaren AV32R processor, plus TAG McLaren 100x5R and Bryston 9B 5-channel power amps. Stereo programming gave excellent results, with

an essentially neutral character, a very good dynamic range and fine, driving bass with plenty of weight and determination. There are no obvious boxy effects, stereo images are notably spacious and well defined, and musicians sound convincingly coherent.

Voices are very slightly laid back, almost shut in, which is an encouragement to turn up the volume to a slightly higher level than I would normally use. However, this effect was rather less obvious and significant than I found with the larger N801. The treble is a little obvious too, especially at first switch-on, but it's essentially clean and truthful to the source, so one quickly adjusts – in stereo mode at any rate.

Moving to multichannel sound was generally satisfactory, but does bring one up against the limitations of current media. A top quality speaker system is by definition going to be more revealing than those lower down the price/performance scale, and although the overall sound here was very impressive in many ways, it was just that little bit more difficult to ignore the inherent lack of delicacy and transparency in data-reduced digital formats such as Dolby Digital. The surround channels integrated particularly well, while the extra forwardness of the centre channel was only intermittently audible, and not particularly distracting.

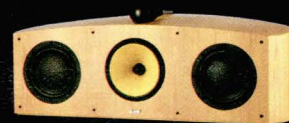
The Metallica DVD is rather bright in balance, and this didn't sit too easily with the rather exposed top end of the Nautili, though a happier all-round balance was achieved here by applying THX processing. The bottom end was particularly firm, authoritative and powerful, and this has gone some way towards convincing me of the advantages of using 'large' loudspeakers all round, to give the full immersion illusion.

The Nautilus surround sound system was easily able to distinguish between the quite different characters of the TAG McLaren and Bryston power amps, for example, and this leads one to the inexorable conclusion that a speaker system this good will only develop its full potential once superior quality multichannel sources such as DVD-A have become established.

CONCLUSIONS

The Nautilus 803 is a fine basic stereo speaker which both looks and sounds very good, and sets down a firm foundation for the centre and surround models to operate on 5.1 material. The whole system integrates very well, though the visual intrusiveness of that HTM1 won't be to every taste. In every other respect this is an impressive, if pricey, package.

£6,500 B&W ☎ 01903 750750



From the top: N803 front left & right channels, ASW4000 sub-woofer, HTM1 surround channels, SCM1 centre channel. An elegant and well matched system in both aesthetic and sonic terms, this array of Nautili represents one of a variety of combinations available from this high-class range.

"A SYSTEM THIS GOOD WILL ONLY DEVELOP ITS FULL POTENTIAL ONCE SUPERIOR MULTICHANNEL SOURCES BECOME ESTABLISHED."

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MULTICHANNEL AMPLIFIERS

NOW THAT 5.1 CHANNEL SOUND ISN'T JUST FOR HOME CINEMA, ALVIN GOLD AND PAUL MILLER CHECK OUT A CROP OF MULTICHANNEL AMPS.

Home cinema amplifiers have evolved in the last year or two, some for the better, and some in ways that perhaps carry the seeds of their own demise, a point taken up in the conclusion to this test. THX/THX 5.1 Ultra post-processing has become a more popular fixture with higher price models, and this year has seen the first batch of models sporting the 6.1 or 7.1 channel configuration mandated by THX Dolby EX, and its counterpart, dts-ES matrix surround (not forgetting the closely related matrix that Yamaha uses because it can't, or won't, use THX proprietary technology).

The onwards march of DSP soundfield creation continues apace, accounting for significant cost and complexity overloads with some models. DSP adds a whole new range of almost arbitrary variables to the sound quality equation, and often wears poorly in extended listening unless used with great discretion. Another significant trend is the rush towards two-way large screen LCD remote controls, a great idea on paper but current limits on battery and display technology must be expanded before it becomes truly viable. Some however are quite impressive, offering almost as much flexibility as a basic Crestron (or similar) multiroom controller, if not the ease of use, at a fraction of the price.

Dts is now pretty much a standard inclusion alongside Dolby Digital, which is welcome given its sound quality potential, but it is disappointing to have to report that Region 2 dts software remains practically non-existent.

Elsewhere confusion reigns. Video signal handling is of arguable use at the best of times, and is almost inevitably detrimental to sound quality, yet most AV amps are stuffed to the gills with a redundant hotch-potch of composite, S-Video, RGB and component video sockets. All the while, most completely ignore the only interface that is standardised across Europe, the Scart standard.

THE PLAYERS

ARCAM FMJ A22 DAVE/P25	£2,599.80
CYRUS AV5/SMARTPOWER	£2,650.00
DENON AVC-A10SE	£1,299.99
KENWOOD KRF-V7773D-B	£749.99
MARANTZ SR7000	£699.90
NAD T760	£649.95
ONKYO TX-DS989	£2,499.95
PIONEER VSA-E08	£1,500.00
ROKSAN CASPIAN DSP,	
5-CH POWER AMP & VSU	£2,440.00
SONY VA777ES	£1,499.99
TECHNICS SA-DA10	£499.99
YAMAHA DSP-AX1	£1,995.00

OTHER EQUIPMENT USED

Technics DVD-A10 DVD-A player
 Sony DV7700 DVD player
 Nordost interconnects
 and speaker cables
 B&W CDM 7NT/CDM
 CNT/CDM SNT speaker system

MUSIC AND MOVIES USED DURING TESTS

CD: Mahler Symphony No 4/Songs of a Wayfarer - Yoel Levi/Atlanta Symphony Orchestra/Frederica von State

Paula Cole - *This Fire*

Dolby Digital music discs:

Beethoven Symphony No 4 - Gianluigi Gelmetti/Radio-Sinfonie-Orchester Frankfurt

dts: dts Digital Surround sampler, including material from The Eagles,

Mahler, and extract from *Apollo 13*

dts Digital Surround Sampler #4,

inc extract from *Saving Private Ryan*

DVD-Video

The Mummy, The Matrix

The Ultimate DVD Test Disc set - Unapix

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HI-FI CHOICE BEST BUY

F MJ is fast becoming the familiar face of Arcam. The central DAVE home cinema processor module

is the very one that has been available for some time as an accessory for the Alpha 10 amplifier, and it is used here in the same way, as an optional add-in for the FMJ A22 stereo amplifier. The A22 itself is a repackaged and improved Alpha 10, but the superior casework provides sonic as well as visual benefits, and a number of small but cumulatively significant improvements have also been made internally. The other three identical channels are supplied by the P25 stereo power amplifier, with a third add-in single channel module.

To accommodate the DAVE and the MARC multi-room module, the FMJ A22 was designed around a bus architecture which not only provides considerable flexibility, but also delivers a degree of intelligence; multi-function controls, programmable control responses and smart output protection monitoring being top of the list. The final component is a rather complex programmable remote control with an extensive internal code bank, though many of the brands supported are not available in the UK, and many UK brands are not supported at all.

SOUND QUALITY

There are some minor differences between the instructions and real

world operation, but the system is on the whole easy to set up and to use once having negotiated the complex remote control, which some will find needlessly obstructive.

We have tested the amplifier in the past (in stereo trim) with very positive results, and have no reason to amend those views here. As a home cinema amplifier the obvious danger was that the soundfield processing would not be to the same standard, but this is not the case. Although it lacks THX Ultra – and some of the refinements that the processing engines in the Yamaha DSP-AX1 (and other similar) designs can bring to bear – the Arcam is a serious performer, more than capable of strong, well focused soundstaging, and sharp, quick and essentially seamless image steering.

The Arcam is more powerful than most despite the mainstream

THE LAB REPORT

ARCAM'S FMJ DUET is able to maintain 2x125W (FMJ A22) plus another 3x125W (FMJ P25), increasing to 5x175W into 4 ohm loads. Under dynamic, music or movie-like conditions, the combination will deliver 165W, 288W, 460W (15.2A) and 437W (20.9A) into 8, 4, 2 and 1 ohm loads, respectively, the Arcam combo will drive the most difficult speaker packages.

The response is flat and the A-wtd S/N ratio only slightly below average at 83dB (re. 0dBW). Distortion, however, does increase quite

markedly at high frequencies, regardless of power output. This phenomenon is all part-and-parcel of the output stage(s) and amounts to a change from 0.05% at 20Hz (low bass) to just 0.004% through the midrange before peaking at 0.18% at 20kHz (high treble). As you are unlikely to hear the distortion harmonics of 20kHz (at 40kHz, 60kHz etc), this isn't likely to prove troublesome, but is an indication of reduced linearity at HF and a likelihood of other distortion mechanisms (such as RF IMD) occurring.



Arcam's reliably lovely FMJ A22 amplifier comes here with a multichannel DAVE upgrade – turning it into a great amp with impressive home cinema abilities.

lar consistency, which helped with all types of programme material.

CONCLUSION

Perhaps the principal limitation of this amplifier is the absence of a 5.1 channel input, which rules out using it with DVD-Audio. It is a gripping performer with music, however, and comes close to matching the best of one-box solutions for multichannel imagery, which makes it a superb all round proposition. Best Buy.

“THE ARCAM IS A SERIOUS PERFORMER, MORE THAN CAPABLE OF STRONG SOUNDSTAGING AND SHARP IMAGING”





SUPER AUDIO CD

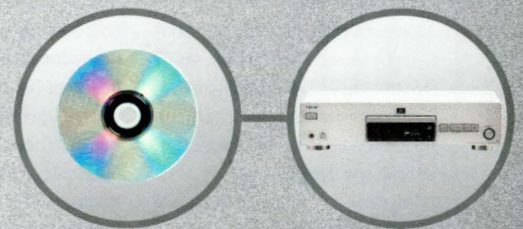
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HI-FI CHOICE RECOMMENDED

This package consists of the AV5 processor/pre-amp, which can be linked with most existing Cyrus stereo amplifiers if required, or used on its own; and three stereo power amplifiers under the SmartPower name.

The AV5 is a development of the Cyrus AV Master, and is designed primarily for ease of set-up and use. Although it can be set up manually, you can also use the supplied microphone, which measures speaker distances and levels, and automatically makes the necessary adjustments, leaving only speaker size selection to the user. Dolby Digital and dts 5.1 processing are available, and useful secondary features include an input naming option, and an adjustable subwoofer crossover filter.

Each SmartPower is rated at 60 watts/channel 8 Ohms, or 105 watts in a form of bridged mode operation that preserves the ability to drive low impedance loads by using a micro-processor to switch the main transformer taps as required.

The obvious omission is video signal routing, which means a drastic simplification in the design. The Cyrus combination is designed for those who connect their video sources straight to the TV, and means that both the amplifier and processor must be switched when changing sources – surely a reasonable price to pay for keeping A and V apart.

THE LAB REPORT

THE AV5 PREAMP is capable of delivering a full 16-bit 96dB S/N on all channels in Dolby Digital with a 1kHz distortion of just 0.0015% and a response that's flat to within +/-0.05dB. Distortion increases to 0.018% at 20kHz where the increase in ultrasonic noise from Crystal's CODEC also becomes more obvious. This increases as the volume circuit is increased.

The accompanying SmartPower amplifiers are aptly named. Under dynamic conditions they will deliver single-channel bursts of 122W and

195W into 8/4 ohm with 143W (8.5A) and 71W (8.4A) limited by Cyrus's exceptionally fast electronic over-current protection into 2 and 1 ohm loads. However, single-channel output of 95W/8 ohm dropped to 75W/8 ohm once both channels were loaded. This is still well within Cyrus's 60W specification but shows that the PSX upgrade is likely to improve speaker-driving capability. Other figures, including the 95dB A-wtd S/N ratio, the low distortion (typically 0.001% midband) and low DC offsets all bode well.

The Cyrus AV5 multichannel system includes a microphone with which you can measure your speaker balance, ensuring the perfect surround sound set-up.

SOUND QUALITY

One of the power amplifiers triggered its output protection on test, but this quickly cleared, and was the limit of the problems encountered while using it. Using regular CDs as the source, stereo sound quality was very good, with the emphasis on such attributes as speed, agility and clarity, very much in keeping, in fact, with Cyrus stereo high fidelity amplifiers, which have the same expressiveness and subtlety, and the same simple lack of bombast.

This emphasis is on the detail rather than the overall picture, and the relative shortfall of hard hitting dynamics – especially at the upper end of the system's volume spectrum – reduced the ability to portray the



“USING STEREO CDS AS THE SOURCE, SOUND QUALITY WAS VERY GOOD - SPEEDY, AGILE AND CLEAR”



excitement and the physical sense of presence that good feature film soundtracks provide. The relatively pedestrian nature of the soundfield processing – compared to the heavy-weight systems (and especially those with THX Ultra processing) – set the limits on an amplifier that on the whole works best at moderate volume levels, and with low key films that major on dialogue and subtle acoustics rather than large scale special effects.

CONCLUSION

There is an argument that video signal handling in AV amplifiers is aimed at the US market, which doesn't use Scart connectors. In Europe, which is Scart territory, there is little to be gained by routing video through the amplifier, and everything to lose, and Cyrus put this simple fact to good use in this refined and subtle, but not always very muscular system. Great stuff, especially if music reproduction is top of your wish list.

SMART SOUND YOU WON'T BELIEVE



TV



GAMES



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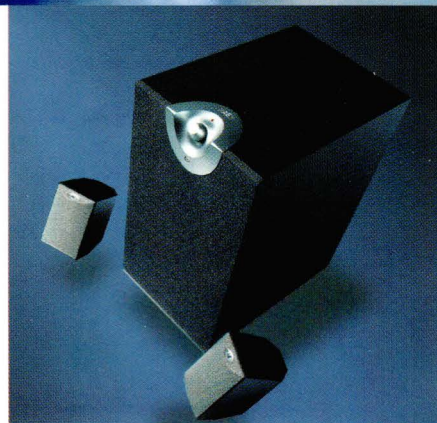
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DENON AVC-A10SE

CONTACT 01753 888447 www.denon.com GUARANTEE 2 YEARS

SOUND ★★★★★ VALUE ★★★★★ £1,299.99

HI-FI CHOICE BEST BUY

With its champagne finish, slab alloy fascia, sturdy frame, and straightforward (even artless) control system, the message is clear: this is a serious amplifier, aimed at the hands-on enthusiast. The specifications are impressive. Tipping the scales at 21.5kg, the AVC-A10SE is THX Ultra certified, and is the first of its type to support THX Dolby EX and dts-ES, though unlike the Onkyo TX-D5989 the extra rear channels will require outboard power amplification. The five on-board power amplifiers are rated at 125 watts each. Uniquely, the surround mode can be set to diffuse for movies and directional for music.

The AVC-A10SE includes not one, but two progressive scan component video inputs and a 6-channel analogue audio input for DVD-Audio or SACD, and can apply processing to reproduce conventional, and non-THX Dolby EX encoded recordings through a 7.1 channel speaker array. 24-bit/96kHz inputs (e.g. from DAD discs) can be accepted without down-sampling. Like previous Denon amplifiers, DSP is not at the centre of the agenda, but there are some DSP modes which support the full 7.1-channel configuration.

SOUND QUALITY

While nobody would claim that set-up of this extremely complex piece of equipment is completely transparent,



Ready for SACD and DVD-A, Denon's multichannel amp works like a dream with both stereo music and home cinema – especially as it features THX Ultra processing.

it is probably about as straightforward as you can expect in the circumstances. This is thanks to a well-conceived control system and a remote control that includes a learning facility to control other Denon and third party components.

Sonically, this is easily the most impressive one-box amplifier tested, coming close to equalling the Arcam pair as a stereo amplifier, and exceeding it in multichannel mode, and at a comparatively bargain price. Stereo performance was excellent: rich, full, articulate and altogether a better animal than the others, and thoroughly convincing with a wide range of music types. Bass had more authority despite being set up in the same way as the other systems, and the effect

of the tone defeat was particularly obvious, and beneficial.

Home cinema material was also handled well, with clear benefits from THX Ultra processing, a consistent feature of this group in those models that include this feature. Although we weren't using THX-certified speakers, the suite of processes applied to the signal has the consistent effect of pulling the soundstage together, effectively causing the speakers to disappear, and creating a more homogenous soundstage in the

process, with analogue and digital sources alike. Add this to the Denon's superb image steering, and the result is a compelling and often dramatic experience.

CONCLUSION

The Denon AVC-A10SE is a top class integrated AV amplifier that, in the rush to provide the ultimate adrenaline fix for the latest Hollywood special effects epic, has not forgotten the art of fine purist music making. Best Buy.

THE LAB REPORT

THIS AMP DELIVERS 5x160W with 2x200W and a dynamic capacity of 260W, 475W, 370W (13.6A) and 81W (9A) into 8, 4, 2 and 1 ohm loads respectively, the last two cut short by electronic protection. Up to 240W/8 ohm is available for medium-term (100msec) dynamics, ensuring the A10SE will muster a powerful sound. Typically, the surround channels offered slightly lower distortion and noise than the fronts. At 1W/8 ohm, the surrounds hovered between 0.002-0.04% across the audio range while the

front L/R outputs lay between 0.004-0.08%. Up to 100W, the front L/R distortion was often double that from the surrounds, though the difference between 0.007 and 0.003% is hardly catastrophic. Similarly, the front L/R signal-to-noise of 79.7dB improved to 81.2dB via the surrounds (83.3dB and 83.4dB via DD), though neither is spectacular. Otherwise, output impedance shows good control at 0.06 ohm, offering a front/surround (DD) response that's -0.6dB/-0.5dB down at 20kHz, respectively.

“STEREO PERFORMANCE WAS RICH, FULL, ARTICULATE AND ALTOGETHER THOROUGHLY CONVINCING”





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KENWOOD KRF-V7773D-B

CONTACT 08705 357357 www.kenwood.co.uk **GUARANTEE** 1 YEAR

SOUND ★★☆☆☆ **VALUE** ★★☆☆☆ **£749.99**

The bulbous front panel is certainly different, though build quality is not as solid as some. This is a Dolby Pro-Logic/ Dolby Digital/dts receiver with a 40-preset RDS FM/AM tuner, 10 line inputs, and a 5.1 channel analogue input. Other features of note include HDCD decoding for two-channel PCM inputs from HDCD recordings used on non-HDCD players.

The specifications for power output are not very forthcoming. The claim is 120 watts/channel in surround, but this is for one channel driven in the case of the main front and surround channels, and for a 4 ohm load. The 8 ohm figure for all channels driven turns out to be 80 watts (see Lab Report), which proves that you can't always rely on manufacturer's specs. One slightly happier feature is the learning remote control, which accepts and transmits user commands, as well as conveying the current receiver status. The unit makes good use of a three line LCD display, and with the aid of a small handful of nearby buttons, setting up is a breeze, especially compared to the models with full glass LCD screen remotes.

SOUND QUALITY

Strong cross input crosstalk from unselected inputs was identified with this model, and the Kenwood also suffered from less than graceful



output overload characteristics, with heavy and obvious clipping distortion once a fairly sharp transition point was breached. There is no real shortage of power here, but it's less useable when pushed because of this abrupt transition into clipping.

As long as the output gearing was kept in check, the Kenwood performed satisfactorily, and showed the occasional spark of real talent. Consistently with stereo, Dolby Digital and dts the same qualities were apparent: a quite strong, almost up-front presentation that underlined the drama of the material, along with quite high levels of detail, a point noted on several occasions with music and home cinema material alike. The Kenwood put on a grand show with the intricacies of *son et lumière* spectacular *The Matrix*, but sounded mildly under

pressure at high volume levels with full bore material, such as *Saving Private Ryan* (R1 from a dts sampler).

The Beethoven Dolby Digital recording showed some true mettle, with a notably strong orchestral presentation, and more than a hint of drama in the performance. The Mahler too had some definite fire in its belly. But the sense of organic ebb and swell, and of air and space, were somewhat limited.

Kenwood's KRF-V7773D, while certainly able with music, is much more suited to a life as a home cinema amplifier – as long as it's not pushed to high volumes.

CONCLUSION

Although there's much to recommend this model, there is a lack of consistency and of transparency that defines the limits of the design, and this spoiled the party with exacting music. But it's a good cinematographic amplifier for medium-sized rooms.

"THE KENWOOD PERFORMED SATISFACTORILY, SHOWING THE OCCASIONAL SPARK OF REAL TALENT"



THE LAB REPORT

THIS IS A WIDE BANDWIDTH design, flat to 30kHz and beyond on all channels. Nevertheless, distortion does increase by a factor of 10 at high frequencies from 500Hz to 5kHz (0.0015% to 0.015%) on the surrounds, for example. Without good linearity at high frequencies, a wide bandwidth is not always a good idea. On the other hand, this amplifier does not clip more abruptly nor run out of steam any more rapidly than any of its competitors. In stereo mode, 2x100W/8 ohm is possible, increasing to

2x160W/4 ohm but falling to 5x80W/8 ohm in multichannel mode. Under dynamic conditions, you can squeeze 133W, 245W, 275W (11.3A) and 150W (12.3A) into 8, 4, 2 and 1 ohm loads, the latter two cut short by (relay-fired) protection.

In Dolby Digital mode, the S/N ratios are very respectable indeed at 86.3dB (front) and 87.8dB (surround) while the responses (all speakers set to 'large') are precisely matched with just a slight +0.2dB treble boost from 10-20kHz.

MARANTZ SR7000

CONTACT 01753 680868 www.marantz.co.uk GUARANTEE 2 YEARS

SOUND ★★★★★ VALUE ★★★★★ £699.90

HI-FI CHOICE BEST BUY

Marantz has never concentrated as assiduously on home cinema hardware as producers like Yamaha and Denon, or for that matter Pioneer or Sony. In a way this is surprising. Way back in the mists of time, they were first off the block with analogue Dolby Surround, and later Dolby Pro-Logic decoders. But Marantz has always offered a respectable, if limited, range of mid-price models. The SR7000 is among the latest, a glamorous-looking champagne gold finished 5.1 channel integrated receiver with all the usual toys: Dolby Pro-Logic (of course), Dolby Digital and dts, and a DSP section, albeit a relatively simple one. The SR7000 also includes a 50-preset AM/FM tuner with RDS. The remote control has a learning facility, and macros – multi-step, multi-component commands (e.g. select DVD, and start play) – can be programmed. Also included is a simple second room/second source capability.

The SR7000 is not THX Surround EX



Marantz's SR7000 offers good sound quality, and flexible input options able to cope with new DVD-V and DVD-A sources. All at a distinctly attractive price.

compatible, but you do get a 5.1 analogue input, and preamp level outputs from all channels, and for audio freaks a source direct switch to bypass the tone controls and bass management. Power output is rated as 100 watts into 8 ohms on an individual channel basis, but you can reasonably expect power output to dip

when all channels are drawing from the common power supply at once.

One feature the Marantz shares with the Pioneer VSA-E08 and a few others is the ability to accept 24/96 digital streams (from the few DAD recordings out there) without down-sampling, which would inevitably mean some loss of musical resolution, however slight.

SOUND QUALITY

The SR7000 is not really star material, but it did turn out to be a good all-rounder at a price that casts some of the others in a distinctly unfavourable light. The Beethoven and Mahler DVDs sounded clean and articulate, with that distinctive slightly full, cool house style familiar from other Marantz amplifiers. It managed this without the almost subliminal high frequency stress or emphasis that is imposed on the music by

many home cinema amplifiers, especially when switched to 5.1 Dolby Digital or dts.

With home cinema material, the Marantz was good enough to demonstrate the superiority of most dts soundtracks, though as usual it was not possible to make direct comparisons between the two using the same material with the same channel configurations. But the SR7000 made hay with most of the material thrown at it, including the *Saving Private Ryan* excerpt from an R1 dts demo disc, which is a particularly difficult recording to carry off without loss of focus in the quieter moments.

CONCLUSION

While it lacks star quality, this is a highly competent and sensibly specified receiver, with a decent tuner and good all-round sound quality, and pricing is particularly keen. Best Buy.

“THE MARANTZ IS A GOOD ALL-ROUNDER AT A PRICE THAT CASTS SOME OF THE OTHERS IN AN UNFAVOURABLE LIGHT”



THE LAB REPORT

MARANTZ RATES EACH of the SR7000's channels at 100W/8 ohm, though this does not mean it'll deliver 5x100W simultaneously. In practice, the SR7000 will sustain 2x110W but just 5x87W in multichannel mode. In stereo guise, musical peaks are accommodated with a *dynamic* capability of 130W, 225W, 295W (12.1A) and 195W (14.0A) into 8, 4, 2 and 1 ohm loads. Though the power supply is clearly stressed at the prospect of driving five power amps, at least the amps themselves are matched.

All offer the same output impedance of 0.1 ohm and the same, above-average S/N ratio of 87dB (re. 0dBW). Even in Dolby Digital mode, the front/surround S/N ratios remain at 85.0dB/84.7dB respectively which is very respectable indeed. All the five channels show evidence of 'creeping distortion' right up to the point where the amplifier clips, though this is more severe on the front. For example, THD at 1W/8 ohm is as low as 0.0025% but increases to 0.025% at 75W/8ohm, all channels driven.

NAD T760

CONTACT 01908 319360 www.lenbrook.co.uk **GUARANTEE** 2 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£649.95**

HI-FI CHOICE BEST BUY

The focus here is on straightforward engineering, a lack of superfluous gadgetry and a welcome freedom from stylistic gimmickry – all of which stands the T760 in good stead when measured against more fully equipped rivals (as most of them are). The T760 performs Dolby Digital, dts plus Dolby Pro-Logic A 5.1 channel analogue input is available, but S-Video signal handling is not available on one of the video tape circuits, and there are no RGB or component video in or outputs. The seven analogue and three digital inputs should be enough for most applications.

One almost welcome omission is the usual confusing and usually unsatisfactory plethora of DSP acoustics. There is a matrix-based ambience recovery circuit called EARS – but that's all. The tuner will store 30 presets on FM, and 10 on AM, and RDS station naming is available.

For once, set-up is an absolute breeze, thanks to a clearly designed system remote control (though the system components do not include DVD) and a straightforward set of on-screen menus. The cause of simplicity is also served by limiting the number of options; for example, it is not possible to select small rear and large centre speakers or vice versa, and dts delay settings cannot be altered.



Easy to set-up, simple to run, and great with music – the NAD T760 is a thoroughbred amplifier, and worth every penny of its modest price.

SOUND QUALITY

The short appraisal is that the NAD T760 is entirely in keeping with other NAD receivers in the range. Not only was it a welcome and refreshingly straightforward-sounding alternative to many of the others in this group, it was one of the very few that performed to the standards of a decent stereo amplifier, that is one for which none of the excuses are necessary. It is a thoroughbred.

The first striking point about the amplifier on test was the lush and vibrant orchestral string tone in the relevant test tracks. Indeed the vivid, colourful and rich tonality was a constant from one music recording to the next. The lack of grain in the treble, and the extended but well balanced bass were other factors in

“A REFRESHINGLY STRAIGHTFORWARD-SOUNDING ALTERNATIVE TO MANY OTHERS IN THE GROUP”



THE LAB REPORT

IN DYNAMIC CONDITIONS the T760 offers 130W, 230W, 200W (10.0A) and 107W (10.4A) into 8, 4, 2 and 1 ohm loads, but the last two results show NAD's 10A current-limiter at work. The S/N ratio is slightly below par at 78dB but at least this performance is retained in Dolby Digital mode. Distortion is fairly consistent front, centre and surround (see below) but the output impedance of the rear amps is significantly higher at ~0.21 ohm versus ~0.08 ohm from the front, potentially making them more sensitive to choices in cable and speak-

ers. It's certainly 'colourful' for, along with the drop in power to 5x82W in multichannel mode, there's a marked increase in modulation between the signal and power supply. This is most obvious through the bass where distortion is just 0.006% at 40Hz in two-channel mode but jumps to 0.02% in five-channel mode at a mere 1W output. This cross-coupling increases with output, doubling between, say 2W and 20W/8 ohm. Clearly, the T760 will sound significantly cleaner as a stereo amp than as the heart of an AV system.

the mix, as was the realistic way that musical dynamics ebbed and flowed. With films soundtracks, the NAD lacked the ability to really let go through the more whizzy sections of *The Matrix*, for example, and it sometimes seemed to underplay the subtle complexities in this disc (R2 Dolby Digital). But throughout it remained enjoyable and engaging.

CONCLUSION

There are no realistic criticisms to be made of the T760's musical stature. The most that can be said is that it leans more towards music than home cinema – but, to be fair, some sort of compromise is inevitable at this price. And I think it's fairly safe to say that, in this case, NAD has made the right one. Best Buy.

ONKYO TX-DS989

CONTACT 01788 556777 www.jamo.co.uk **GUARANTEE** 2 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£2,499.95**

Onkyo beat all comers with the world's first 7.1 channel AV amplifier or receiver with THX Dolby EX and power amplification for all channels (the Denon AVC-A10SE requires additional power amplifiers), helping it win this year's EISA award. But this isn't the limit of the TX-DS989's capabilities, which extend to THX Ultra certification, upgradeability to the much vaunted IEEE1394/Firewire home automation interface (believe it when you see it), 24-bit/192kHz DACs for all channels, and more, much more. An upgrade path is provided by the 4Mb Flash memory, which can be reprogrammed with new control software, and even new sound processing algorithms. MPEG and AAC are mentioned in the propaganda. Bandwidth extends to 100kHz, making the amplifier officially SACD and DVD-Audio compatible. Onkyo has gone to extremes with this design, using highly rated, quality components, low feedback and heavy-duty channel-isolated power



At the price, the Onkyo fails to impress as a stereo amplifier – but its performance as a home cinema processor goes some way toward making up for this.

supplies from the single, massive toroidal transformer. There is some hyperbole in the Onkyo: doubling the sampling frequency of a digital signal from 48kHz to 96kHz does not double its information content as implied, and true 24-bit processors, if they existed at domestic prices, would give much more than the

120dB signal/noise claimed, to give just two examples. The way that power is specified gives a misleading impression of the Onkyo's probable true power output.

SOUND QUALITY

That said, the TX-DS989 is powerful enough, and it is an impressive receiver that also includes (lest we forget) a decently specified AM/FM RDS 40-preset tuner. It is hard to gainsay such a monster of an amplifier, but at the end of the day, the Yamaha DSP-AX1 has its measure as a home cinema multichannel amp, and the Denon AVC-A10E is more than a match for musical sound quality. What the Onkyo has, though, is tremendous power and authority. No matter how complex a soundtrack, the Onkyo was able to capture its scale and power – the celebrated flying sequences in *The Mummy* (chap-

ter 14) being a case in point. The THX post-processing clearly played its part here, and good THX Dolby EX recordings would help further.

But the Onkyo was less than exhilarating when asked to focus on the subtleties of the musical test tracks. This applied to the dts recording of the Eagles *New York Minute*, which sounded curiously heavy handed, as it did the classical excerpts.

CONCLUSION

At £2,500, we are entitled to take a stricter view of the Onkyo's musical shortcomings, and the TX-DS989 doesn't cut it with stereo material. In home cinema mode, however, it is well equipped, with heavy duty sonics and excellent signal processing. It also has the benefit of THX Ultra and THX Dolby EX on board, though the absence of a conventional 5.1 (or 7.1) channel input is a mystery.

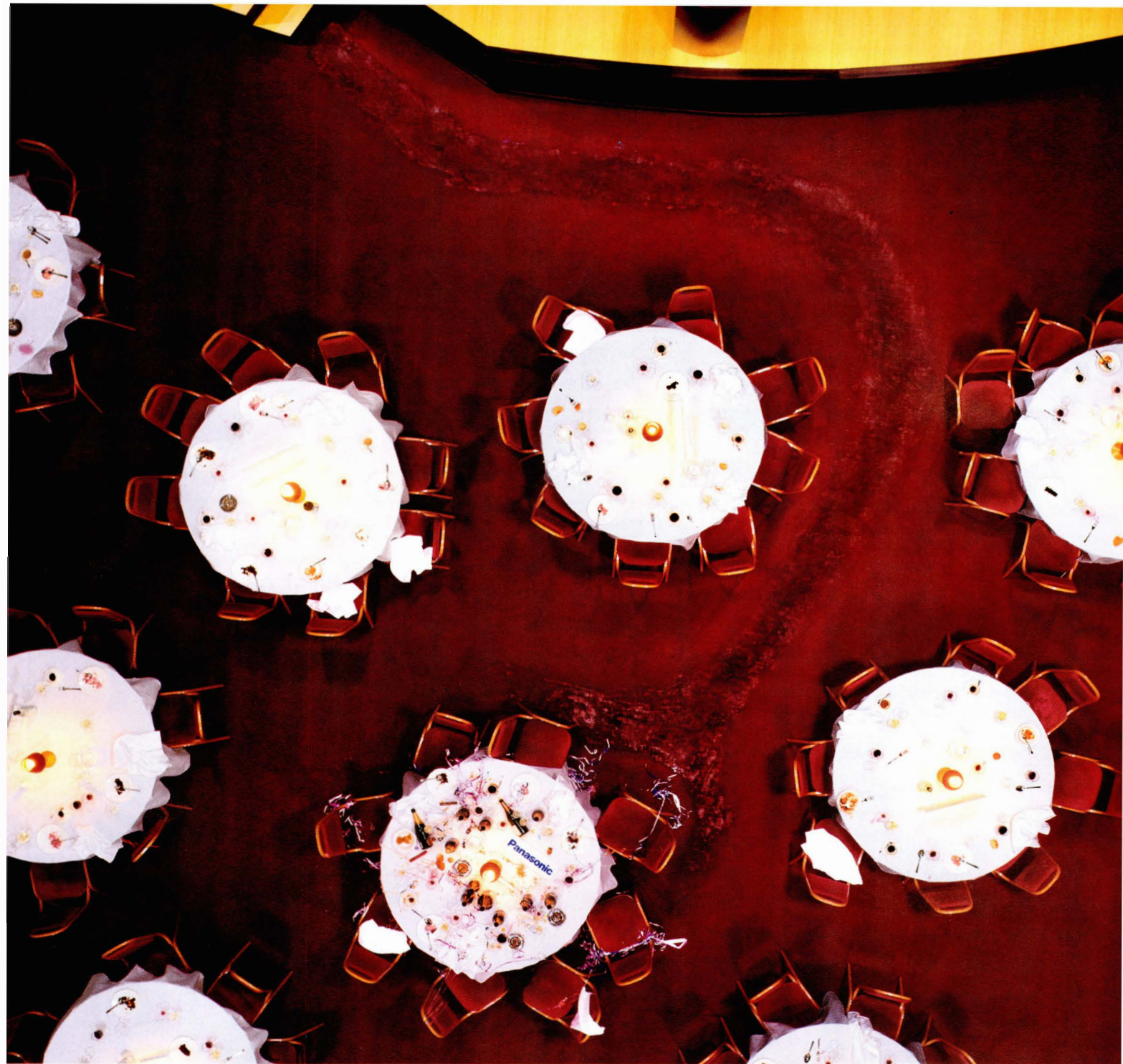
“NO MATTER HOW COMPLEX A SOUNDTRACK, THE ONKYO WAS ABLE TO CAPTURE ITS SCALE AND POWER”



THE LAB REPORT

THE TX-DS989'S REAR PANEL is so over-populated with sockets that the six-channel analogue inputs are condensed onto a DB25-pin connector. As this lead was not supplied, we'll have to do without five-channel power measurements! Two-channel driven, it musters some 170W/8 ohm and a full 255W/4 ohm, barely sagging to 160W/8 ohm with left, right and centre channels taken to the limit. Under dynamic conditions, things look a little less impressive with 211W and 375W into 8 and 4 ohm loads deli-

ered intact, 2 and 1 ohm load delivery cut short by electronic protection to 260W (11.4A) and 155W (12.4A). The profile of distortion versus power output is unusual because it shows higher than average levels of distortion at low and high power, ranging from 0.02% at 1W/8 ohm to just 0.002% at 75W/8 ohm and then 0.02% at 150W. Distortion versus frequency, however, is remarkably consistent while the A-wtd S/N ratio clocks-in at a high 90.4dB (front and centre). And remains over 90dB even in DD mode.



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What's New
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PIONEER VSA-E08

CONTACT 01753 789789 www.pioneer.co.uk GUARANTEE 2 YEARS

SOUND ★★☆☆ VALUE ★★☆☆ £1,500.00

Pioneer laid its marker on the quality AV amplifier market with the VSA-06, and VSA-07. This successor to the latter features dts, 7.1 channel THX Surround EX, and dts-ES (matrix), but the extra rear channels are available at preamp level only, and will require power amplifiers to drive speakers. Also included is THX Ultra post-processing. A notable omission from the VSA-06 was a 5.1 channel input, but this is remedied here by a 7.1 channel analogue input, which should cover all eventualities. Rated power output is 100 watts/channel (8 ohms, RMS etc), though this presumably drops with all channels driven at once (see Lab Report). Improvements over its predecessors include tone controls for each channel, finer resolution set-up for distances etc, greater thickness pcb tracking, and an improved amplifier. There are also detail improvements to the remote control.

A notable attribute of this amplifier is its ability to cope with 24-bit/96kHz DAD discs, the short lived DVD-Video compatible high resolution audio standard which preceded DVD-Audio, and which can be played on Pioneer (and some other) DVD-Video players without downsampling to 48kHz. Another is its 'glass' touch screen remote control, which allows the user to drill through layers of set-up and operational menus, shown on a large backlit LCD screen.



The Pioneer VSA-E08: not too hot with musical sources, but it certainly knows the ropes when it comes to home cinema – thanks to its fine THX Ultra processing.

SOUND QUALITY

On the whole the Pioneer was a little easier to get to grips with than some, but it still takes dedication and some time to get the most from this elaborate and sophisticated model. In its purist stereo configuration, bypassing the A/D and D/A stages, the VSA-E08 was roughly mid-group standard, as good as or better than most of the one-box models, but no match for the models from the specialist hi-fi producers. Where the Pioneer scored was with film soundtracks, where it was capable of dramatic and powerful results. The dts *Apollo 13* soundtrack, for example, was very successful, the immediate pre-launch sequences marrying music, effects and dialogue without

“DTS RECORDINGS WERE GOOD, BARRING SOME LOSS OF INTONATION AND A MUDDING IN THE MAHLER”



THE LAB REPORT

READING THE FINE print of Pioneer's power specs, the real rating looks to be 2x100W. This it meets at 2x110W, though the collapse to 5x75W with all channels driven into a standard 8 ohm load, suggests the VSA-E0A is not as meaty as its appearance might suggest. Dynamic headroom is also comparatively low at 115W/8 ohm, increasing to 215W, 390W (14.0A) and 200W (14.1A) into 4, 2 and 1 ohm loads respectively. When it comes to driving your AV system loud, the VSA-E0A will lag behind its

competitors. The S/N ratio is about 'average' at 83dB/82 dB for the front/surround channels via its analogue inputs, falling to a lower but symmetrical 77dB on all channels in Dolby Digital. Here the response remains smooth and just slightly rolled-off at the treble extremes while distortion remains as low as it does via the analogue inputs – <0.005% through the midrange and just 0.05% at very high frequencies. In two or five-channel mode, this low distortion is maintained right up to the power limit.

obscuring the lower level dialogue, while the launch itself was truly magisterial.

With the multichannel surround music recordings, the VSA-E08 was a mixed bag. The Dolby Digital Beethoven recording sounded simultaneously creamy and screechy, but the dts recordings were better, barring some loss of intonation and some muddling in the Mahler which amounted to congestion through the loudest sections, along with a loss of spaciousness.

CONCLUSION

There's lots of power on tap with this amplifier, but a slight lack of gain meant a number of recordings could not be played quite as loud as some might wish. On the whole however, although not the most musical of home cinema amps, the VSA-E08 is good value because of the extensive facilities on offer. And it must be said that it is first rate in its primary role as a home cinema amplifier, thanks in no small part to its impressive THX post-processing.

ROKSAN CASPIAN DSP, 5-CH POWER AMP & VSU

CONTACT 020 8900 6802 www.roksan.co.uk **GUARANTEE** 1 YEAR

SOUND ★★★★★ **VALUE** ★★★★★ **£2,440.00**

The Caspian home cinema system consists of two main units, the DSP processor/preamplifier, and the AV five-channel amplifier, which are built with the wherewithal that informs all Roksan components. The DSP has digital and analogue inputs, the digital complement including optical, two electrical and an RF input for use with AC-3 enabled LaserDisc. The set-up routine is understandable, but does not allow large centre or surround speakers, even with dts for which large surrounds are advocated. Irritatingly, the iMac-like translucent remote control provides the only access to the volume control.

The power amplifier is rated at 85 watts/channel, and although tested here in its full five-channel form, it can be bought with fewer channels, and added to as required.

An optional third unit, the VSU (Video Switching Unit) supplies the missing video connections: six composite, six S-Video, and one each component in and out, which switches automatically using a link cable when the DSP source is changed. A single button allows manual source selection, for example if the unit is not used in a Roksan system.

SOUND QUALITY

Apart from the odd error in the instructions, such as contradictory information about Pro-Logic decod-



The Roksan Caspian multichannel amp is a dream with music, but a little weaker at home cinema. And why won't it allow for large speakers as the centre or surrounds?

ing of analogue sources, this is an easy system to set up and to use, but it doesn't take long to realise that it is more hi-fi than home cinema. Image steering with Dolby and dts lack the subtlety and range of the best of breed, and some of the more vivid soundtracks, including *The Matrix* (Dolby R2), and *Apollo 13* (dts R1) sounded curiously underplayed. Yet music was well reproduced (using either of the two line inputs that bypass the digital circuits) in just about every respect, a finding reminiscent of the NAD T760, but there is a noticeably huge difference in price.

THE LAB REPORT

THIS FIVE-CHANNEL POWER amplifier is capable of sustaining 2x140W right across the 20Hz-20kHz audio spectrum. With all five channels driven flat out, this falls only slightly to 5x130W, which is well in excess of its rated 5x85W. This amp is a more able performer than most, delivering some 175W, 305W into 8 and 4 ohm loads with a massive 465W (15.2A) and 512W (22.6A) into 2 and 1 ohm loads under dynamic conditions.

I was unable to coax the Caspian DSP processor into accepting my

Dolby Digital test signals. I can confirm, however, that it's based around a Zoran/Motorola DSP chipset and (ordinarily) delivers DD and dts decoded outputs via three Burr-Brown PCM1716 DACs. The analogue performance is impressive. Responses are very flat (just -0.2dB at 30kHz), interchannel balance is tight at 0.05dB, and the effective S/N ratio at 1W/8ohm is 88.0dB to 88.6dB depending on which channel you care to look at (the power modules furthest away from the transformer are slightly quieter).

"IT DOESN'T TAKE LONG TO REALISE THAT THE ROKSAN CASPIAN BUNDLE IS MORE HI-FI THAN HOME CINEMA"



Of course the Roksan doesn't sound quite like the NAD, despite some similarities. The Roksan is a much more muscular beast. Not only is it capable of driving the test speakers much harder (and incidentally even mildly into overload without sounding too disastrous), but it sounded more driving and dynamic even at lower levels within the NAD compass – and the NAD is no mean performer in this area too. Soundstaging was stable and large in scale,

and the Mahler dts recording was truly an event on an epic scale, with strong instrumental and vocal separation and a propulsive bass, qualities also reflected in the film soundtrack sequences.

CONCLUSION

This relatively costly system does not disappoint with music, yet fails to deliver as convincingly with home cinema as obvious rivals like the Arcam, or even the Yamaha DSP-AX2.

www.tag McLaren audio.com

McLaren



DVD32R

Europe's First THX® Ultra certified DVD player for NTSC & PAL



The DVD32R is Europe's first DVD player which exceeds the high THX® Ultra standards and allows reference standard replay of CDs.

High-mass Transport for Low Jitter

The DVD32R uses a top loading transport, allowing its drive motor and servo electronics to be mounted to a heavy, mass loaded sub-chassis. The result is improved data integrity and reduced jitter.

Automatic, Adaptive Drawer Mechanism

The DVD32R aluminium diecast drawer door runs on a polished steel bar and a Teflon glider for smooth and reliable operation, driven by an adaptively controlled electric motor via a steel wire.

Precise Clock for best Sound and Video

The low phase noise single frequency master oscillator ensures that all video and audio clocks are synchronous, with clock signals being transferred using independently buffered and precisely terminated traces.

Field-leading MPEG Decoder

TAG McLaren worked closely with National Semiconductor's field-leading subsidiary Mediamatics, in finding the best MPEG decoder. After long evaluation Pantera-DVD™, the

first IC to integrate all back-end functions of a DVD player onto a single chip, was selected. This unrivalled level of integration includes host processing, a 32-bit RISC processor, 10-bit video DACs and the NTSC/PAL encoders.

Uncompromised Video quality

The video circuitry uses broadcast quality components, with video outputs being individually buffered and vertical and anti-flicker filtering to deliver high quality graphics.

Test-Pattern Generator

In-built test-patterns and electronics test circuitry assist in calibrating the tv for best picture quality.

Advanced Digital Waveform Control

Advanced circuitry optimises rise and fall times whilst preventing waveform discontinuities, reducing the demand on the digital interconnects.

TAGtronic Link T²L for Minimal Jitter

T²L allows the DVD32R to lock its data output to the low noise, ultra low jitter DAC reference clock in the AV32R.

Massive Power Reserves

The DVD32R uses a large toroidal transformer as this has the benefit of a very low stray magnetic field, reducing the possibility of interference with the audio data and video signals. A second, smaller

transformer is used to power the remote control circuitry, allowing very low electrical consumption when switched to standby.

Multiple Power Supplies

Separate power supplies reduce interference between the processing stages, right down to having separate windings on the transformer.

Multi-Layer Printed Circuit Boards

Multi-layer pcbs provide controlled impedances and minimise coupling. Performance is further enhanced using leaded components for perfect analog signals and SMD for fast digital transfer, with quality being optimised using inert-gas soldering.

Enhanced TAGtronic Bus

The TAGtronic Communication Bus allow products to work seamlessly together to form an effective, integrated system.

Upgrade Path

Building on TAG McLaren's class-leading commitment to upgradability, the DVD32R is scheduled to receive a hardware upgrade to DVD-Audio, Progressive Scan and Digital Video whilst functionality enhancements are distributed through TAG McLaren's website, allowing convenient software upgrades at home (using a PC).



TAG McLaren Audio, The Summit, Latham Road, Huntingdon, Cambs. PE29 6ZU
freephone: 0800 783 8007 tel: 01480 415600 fax: 01480 52159 e-mail: helpdesk@tagmclarenaudio.com

To book an audition contact one of these authorised DVD32R stockists:

Audio Designs	East Grinstead, West Sussex	01342 314569	Music Matters Ltd	Solihull, Birmingham	0121 742 0254	Sevenoaks Sound & Vision	Sevenoaks, Kent	01732 459555
Audio T Ltd	Bosingsdake, Hampshire	01256 324311	Music Matters Ltd	Sutton Coldfield, W. Midlands	0121 354 2311	Sevenoaks Sound & Vision	Tunbridge Wells, Kent	01892 523548
Audio T Ltd	Brentwood, Essex	01277 264730	Music Matters	Stourbridge, W. Midlands	01384 444184	Sevenoaks Sound & Vision	Watford, Hertfordshire	01923 213533
Audio T Ltd	Camberley, Surrey	01276 685597	PJ Hi-Fi	Guildford, Surrey	01483 504801	Sevenoaks Sound & Vision	Witham, Essex	01376 501733
Audio T Ltd	Chandler's Ford, Hampshire	01703 252827	Prestige Audio Ltd	Harrow, London	0208 868 3300	Sevenoaks Sound & Vision	Worcester, Worcestershire	01905 612929
Audio T Ltd	High Wycombe, Bucks	01494 558585	Rayleigh Hi-Fi	Lakeside, Essex	01708 680551	Stereo Stereo Ltd	Glasgow, Strathclyde	0141 248 4079
Audio T Ltd	West Hampstead, London	0207 794 7848	Rayleigh Hi-Fi	Rayleigh, Essex	01268 779762	Suttons Hi-Fi	Bournemouth, Dorset	01202 555512
Horrods	Knightsbridge, London	0207 730 1234	Rayleigh Hi-Fi	Chelmsford, Essex	01245 265245	Technique UK Ltd	Wimbledon Village, London	0208 944 9040
Harrow Audio	Harrow, Middx	0208 930 9933	Sevenoaks Sound & Vision	Bedford, Bedfordshire	01234 272779	The Audio File	Bishops Stortford, Herts	01279 506576
Martin Kleiser Ltd	Chiswick, London	0208 400 5555	Sevenoaks Sound & Vision	Epsom, Surrey	01372 745883	The Hi-Fi Shop	Belfast, N. Ireland	02890 381296
Martin Kleiser Ltd	Uxbridge, London	01895 465444	Sevenoaks Sound & Vision	Ipswich, Suffolk	01473 286977	The Listening Rooms	Chelsea, London	0207 244 7750
Martins HiFi	Norwich, Norfolk	01603 627010	Sevenoaks Sound & Vision	Kingston, Surrey	0208 547 0717	The Powerplant (Hi-Fi) Ltd	Brighton, Sussex	01273 775978
Moorgate Acoustics	Sheffield, Yorkshire	0114 275 6048	Sevenoaks Sound & Vision	Plymouth, Devon	01752 226201	Unilet Sound & Vision	New Malden, Surrey	0208 942 9567
Music Matters Ltd	Edgbaston, Birmingham	0121 429 2811	Sevenoaks Sound & Vision	Preston, Lancashire	01772 825777	Zebra	Chelsea, London	0207 351 7795

SONY VA777ES

CONTACT 0990 111999 www.sony.co.uk GUARANTEE 1 YEAR

SOUND ★★★★★ VALUE ★★★★★ £1,499.99

Very roughly, the story of the Sony VA777ES is that it employs many of the design concepts of such predecessors as the TA-E9000ES and the TA-N9000ES, which in turn drew on the STR-DB925, all celebrated components of their type. However the VA777ES benefits from a number of enhancements in fundamental areas. These include improved depth creation around the screen, faster/more powerful soundfield processing than with previous ES models, a true bypass of the digital and video circuits for two-channel listening, improved power supplies and volume control design, and the introduction of a new set of displays and set-up controls. Also on offer: an enhanced two-way communicating 'glass' backlit touch screen remote control (which reads back the amplifier status), as well as providing a hierarchical set of menus to drive the amplifier. SACD readiness is delivered by the wide (100kHz) operating bandwidth.



Sony's efforts have had some success. The VA777ES is easier to understand and to drive than some, but there are still problems. Interface design is not consistent, and there are problems associated with the remote control – which, despite some improvements, still has a low display contrast, and which still turns itself off to save battery power at inopportune moments. The menu structure is complex and slow to navigate.

SOUND QUALITY

Overall, this player was one of the better models on test, with a more even spread of abilities in audio and home cinema modes than most. The Sony shares with the Yamaha DSP-AX1 the ability to make much out of good movie soundtracks. The *Apollo 13* extract (dts R1) was powerful, subtle and more than ordinarily room-filling, and the eerie sound effects in chapter 12 (*The Regeneration*) from *The Mummy* were gripping and (almost) convincing, with a proper complexity and sense of wrap, and with directional effects very tellingly conveyed.

The Eagles' *New York Minute* (another dts sampler track) sounded more than usually focused and lively, with an almost understated quality that merely served to highlight the sense of occasion. The other musical extracts from Beethoven and Mahler

One of the better equipped models in the test, the Sony handled multichannel and stereo music and home cinema sound with aplomb.

were excellent: crisp and light, and once again featuring excellent directional effects. The Beethoven Dolby Digital recording was particularly successful on this occasion, with a ripeness and a bite from the orchestra that underlined the quality of the playing and the recording. It is not often that the second claim can be made on behalf of a Dolby Digital music recording.

CONCLUSION

Definitely one of the most successful one-box models, the Sony would be in Recommended territory, only the Denon ultimately stealing its thunder, thanks in part to its pricing and the edge that THX post processing brings to the party.

“THIS WAS ONE OF THE BETTER ONES, WITH AN EVEN SPREAD OF ABILITIES IN STEREO AND HOME CINEMA”



THE LAB REPORT

SONY'S DOLBY DECODER is very clean, offering low 0.001% distortion through the midrange (max 640kbps data rate) and just 0.02% at 20kHz where there's no sign of any digital artefacts. The response too, is exceptionally flat through all channels. There is a loss in 'equivalence' or symmetry between front and surround channels however, observed in the difference between the 85.7dB and 78.1dB S/N ratio's, respectively, in DD mode (all channels set to 'large'). This same disparity occurs

via the analogue 5.1 channel inputs where the S/N ratios are 86.7dB and 76.6dB, respectively. There's no appreciable difference in distortion (typically <0.005% from bass through midrange) or power output between channels. The TA-VA777ES is not overtly powerful (just 2x75W or 5x65W/8 ohm) but it is very tolerant of low speaker loads (2x120W/4 ohm). Under dynamic conditions, this improves to 86W, 163W, 221W (10.5A) and a full DD mode (all channels set to 8, 4, 2 and 1 ohm loads, respectively.



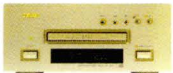
R-H500 Reverse Cassette Deck



DV-H500 DVD Player



RW-H500 CD Recorder



VRDS-9 Compact Disc Player



PD-H570 Multi-CD Player



PD-H500i CD Player



MD-H500i MiniDisc Recorder



T-H500 FM/AM Tuner



AV-H500D AC-3 Pro-Logic Surround Amp



AG-H500 Stereo Receiver



A-H500i Amplifier

What a pair.

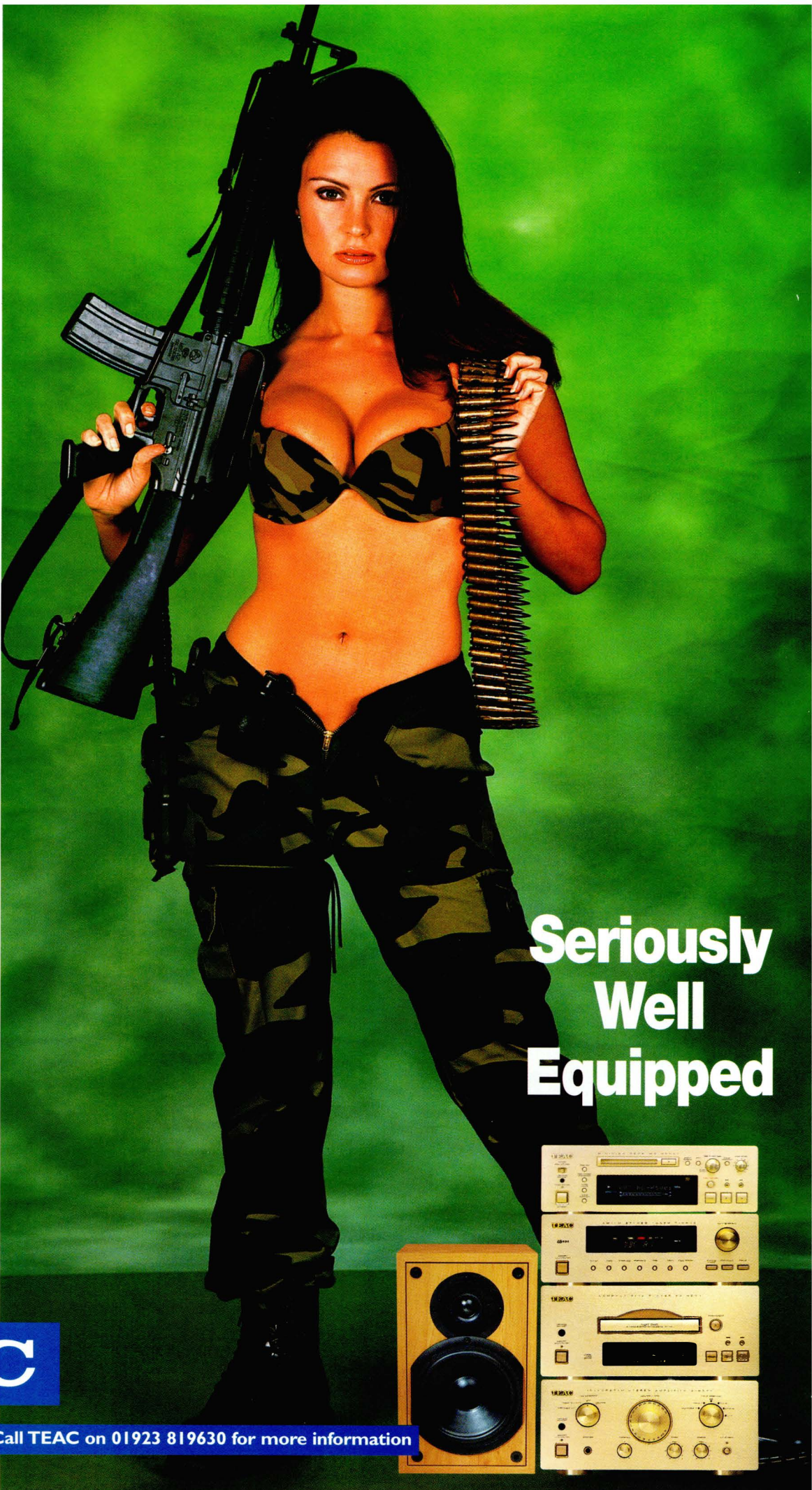
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TECHNICS SA-DA10

CONTACT 01908 319360 www.technics.co.uk **GUARANTEE** 2 YEARS

SOUND ★★☆☆☆☆ **VALUE** ★★☆☆☆☆ **£499.99**

This is the strapline from Technics' promotional material: "To get the most from a heavyweight soundtrack, you need a heavyweight receiver"... Which is ironic as, at 12.7kg, this is one of the lightest models in this test. Which it is not say that it is lacking. It is solidly built, thanks in part to a low resonance mineral-loaded base, and there are some good quality components, notably a low leakage main transformer and TAKEH capacitors. The simplest and most affordable of all the one-box amplifiers makes a strong contrast to some of the more costly models. It still offers Dolby ProLogic, Dolby Digital and dts, which is now virtually universal, despite the embarrassing shortage of dts encoded R2 DVDs. There's a 5.1 channel analogue input too, but the range of inputs, analogue and digital alike, is more limited than with many of the others in this test.

Only optical digital inputs are available, which is unwelcome in part because they don't generally sound as good as electrical ones. Note that the Technics DVD-Audio player used in this test has both. What you do get is an RDS FM/AM tuner, and a remote control capable of controlling other Technics components and Panasonic DVD, TV and VCR recorders. Rated power output is 80 watts/channel into 6 ohms, which refreshingly, it delivers as the Lab Report confirms.



The Technics multichannel amp might be a bit average with music, but its home cinema performance is noticeably better – with clear and simple sound.

SOUND QUALITY

This is a clean, clear-sounding amplifier in all modes of use, but it is not an inspiring one. The bass is curiously dry and inexpressive, and something of this same mechanical feel was apparent at various times throughout the test. It seems that although the design of home cinema amplifiers has moved on somewhat over the last few years, it hasn't caught up with this one.

The various music recordings were broadly satisfactory, but the Mahler (dts) somehow didn't connect: it simply didn't rise to the occasion, and it sounded rather coarsely textured when pressed. The Beethoven (Dolby Digital) recording was good, but without the fire that was definitely

"THIS IS A CLEAN, CLEAR-SOUNDING AMPLIFIER IN ALL MODES OF USE, BUT IT IS NOT AN INSPIRING ONE."



THE LAB REPORT

THE SA-DA10 IS CONFIGURED

for an astonishingly wide S/N ratio – 91.0dB via front channels and 97.5dB via the surrounds. Unfortunately this does not necessarily correlate with improved sound quality. Indeed, opening the 'window' this wide just might make other distortion mechanisms (eg RF IMD) more apparent. It will deliver 2x100W/8 ohm in stereo, falling to 5x80W/8 ohm in 5.1 channel mode. Under dynamic, music-like conditions, it's possible to achieve 135W, 212W and 260W (11.4A) into 8, 4

and 2 ohm loads but just 68W (8.3A) into very low 1 ohm loads because of in-built protection. Importantly, the pattern of distortion with respect to frequency (0.001-0.06%, 20Hz-20kHz) and output level (<0.005%, 1kHz from 1-70W/8 ohm) does not change whether two or five channels are driven, suggesting that whatever the demand on its power supply, performance is maintained. This extends to Dolby Digital which retains a flat response and broadly equivalent levels of distortion.

there on the recording, and which distinguishes good Beethoven from the merely routine.

The amplifier's home cinema performance was somewhat better than this rather downbeat assessment suggests, perhaps because with five channels at once, there is so much going on that it is harder to pick holes. "Cheap but clear," my listening notes report, but this is a little hard on an amplifier that made

a fair fist at *The Matrix*, and with subtler material like *Dances with Wolves* (dts R1).

CONCLUSION

Pricing is a big plus point here, but there are better models on test that cost little more, and it is hard to get excited about a design that, while satisfactory with home cinema material, sounded coarse and reined-in with music.

*Whatever your
taste in music...*



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AWARD WINNING INTERCONNECTS

YAMAHA DSP-AX1

CONTACT 01923 233166 www.yamaha.co.uk GUARANTEE 2 YEARS

SOUND ★★★★★ VALUE ★★★★★ £1,995.00

The successor to the long lived and well respected DSP-A1 is this massive (471x211x473mm, 28kg) monolith, whose key features are a heavy concentration on DSP, and in particular DSP enhanced sound fields based on Dolby and dts in various iterations. In this case, this includes Yamaha's non-Kosher variant on THX Dolby Surround EX called Cinema ES (and the dts equivalent, dts-ES) which involves an additional centre rear channel – resulting, in all but the largest rooms, in too much localisation of the rear channel compared to the usual split rear left/right channels. In addition a pair of front effects speakers can be added above and behind the main speakers. You will get some feeling for its flexibility from the fact that there are 136 sockets of various kinds.

SOUND QUALITY

Even with the instructions to hand, there were real problems getting this machine set up properly, and at one point telephone handholding from Yamaha was required during an (eventually aborted) panel listening test – see introduction. The issue of set-up goes deeper than this, however. More than with any other home cinema amplifier, the Yamaha's character is fundamentally determined by a number of variables: whether or not to use the front effects channels, whether to allow DSP soundfield



The Yamaha DSP-AX1 is built for multi-channel home cinema sound – witness its staggering 136 sockets and its amazing ability with movie soundtracks

enhancement, how to use bass management (up to three subwoofers can be connected), how to make best use of the complex tone control equaliser facilities and more.

All of this makes coming to hard and fast sound quality judgements risky. What can be said is that the DSP features need to be treated carefully. With prudent tuning they can often enhance, but the ability to tweak to meet particular requirements is unmatched, as is the possibility of messing things up big time by laying it on too thick.

At its best, and with plain vanilla dts and Dolby Digital, the Yamaha has a stunning ability to create living, breathing soundfields. It is never happier than dealing with the intricacies

of *The Matrix* or conjuring up a forceful presence in the flying sequences from *The Mummy*, or the rocket launch sequence in *Apollo 13*. At the same time, music reproduction definitely can suffer. Straight stereo, with everything bypassed, lacked transparency, and even tended to sound congested at times.

CONCLUSION

This is an amplifier that has enormous power, and builds convincing

climaxes on a grand scale, while retaining vocal intelligibility, but even with the DSP and equalisers switched off, it is simply not as transparent as the best. With home cinema material too there is not the consistency that comes with THX Ultra processing, and the thrills of DSP can be short-lived. This is principally a home cinema amplifier *par excellence*: it is not as accomplished at handling stereo music reproduction at the highest quality levels.

THE LAB REPORT

THIS YAMAHA SPECIFIES a minimum 110W power output for the five main channels and, indeed, just achieves this with a 5x115W rating. The power supply is evidently under some strain here because the AX1 will deliver a full 150W with just two channels driven, increasing still further under dynamic conditions to 185W, 320W, 490W (15.7A) and 330W (18.2A) into 8, 4, 2 and 1 ohm loads – the latter cut short by protection circuitry. The output impedance of the front channels is better controlled than the sur-

rounds, though all channels are pretty much ruler flat. Distortion is very low in all modes, averaging around 0.002% via the analogue inputs and 0.01% with Dolby Digital signals over much of its power bandwidth. The gain (or amplification factor) is high at +45dB but there is a difference in S/N between front (87.5dB) and surrounds (85.3dB) which falls to a slightly disappointing 77.8dB and 81.0dB, respectively, with DD. Nevertheless, there's a healthy freedom from digital distortions.

“WITH PLAIN VANILLA DTS AND DOLBY DIGITAL, IT HAS A STUNNING ABILITY TO CREATE LIVING, BREATHING SOUNDFIELDS”





CONCLUSIONS

ALVIN GOLD CONSIDERS THE IMPLICATIONS OF US PRACTICES ON THE SOUND OF A/V AMPS.

Until now, home cinema amplifier design has been dominated by the requirements of the US market, which is shaped by the lack of a Scart-like audio/video interface, which means that it is natural to channel all video signals through the amplifier. This same US domination means we have the uncomfortable situation in which amplifiers are increasingly becoming button festooned monsters. Some weigh the best part of 30kg and may have over 130 sockets, and are so complex to

PLAYERS AT A GLANCE



MAKE MODEL NUMBER	ARCAM FMJ A22 DAVE/P25	CYRUS AV5/SMARTPOWER	DENON AVC-A10SE	KENWOOD KRF-V7773D	MARANTZ SR7000	NAD T760
PRICE	£2,599.80	£2,650.00	£1,299.99	£749.99	£699.90	£649.95
SOUND VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CONCLUSION	Powerful, authoritative, great stereo, excellent home cinema - what more can you want?	Refined, detailed and attractive, but ultimately lacking in balls.	Superb sound, a strong feature set and reasonable pricing. What more could you want?	Bold presentation, but with some technical limitations and a slightly mannered quality.	Excellent at the price, and almost equally effective with stereo and multichannel.	More than adequate home cinema receiver that unusually doesn't muck up the music.
GUARANTEE	2 YEARS	2 YEARS	2 YEARS	1 YEAR	2 YEARS	2 YEARS

THE LAB REPORT

DYNAMIC POWER OUTPUT						
SPEAKER LOAD TOLERANCE						
AUDIBLE DISTORTION						
NOISE						
OVERALL RATING						

MEASUREMENTS

POWER OUTPUT, 8 OHM, 1KHZ (2 CHANNELS)	125W	95W	205W	100W	110W	105W
POWER OUTPUT, 8 OHM, 1KHZ (5 CHANNELS)	125W	76W	160W	80W	87W	82W
DYNAMIC HEADROOM, 1KHZ (IHF)	+0.7dB	+1.1dB	+1.0dB	+1.2dB	+0.7dB	+0.9dB
MAXIMUM CURRENT (10MSEC, 1% THD, 1KHZ)	20.9A	8.5A	13.6A	12.5A	14.0A	10.0A
THD, FRONT @ ODBW, 1KHZ.	0.001%	0.006%	0.002%	0.004%	0.006%	0.005%
THD, SURROUND @ ODBW, 1KHZ	0.005%	N/A	0.004%	0.003%	0.003%	0.003%
S/N RATIO, FRONT/SURROUND (A-WTD)	82.8/82.7dB	95.3/94.9dB	79.7/81.2dB	89.9/90.3dB	87.2/87.0dB	78.3dB/78.3dB

set up that the author (who has no problems assembling computers from parts) had to abandon a panel listening test because of the problems involved setting up the equipment quickly and accurately within the required timescale. The black art of bass management in particular, which was bought in partly to tidy up the problems that arise when integrating subwoofers into existing systems, has itself become part of the problem rather than the solution.

While some of the more complex amplifiers represent incredible material value, complexity has always been the enemy of sound quality, and this test provides ample evidence that nothing has changed. We are

promised that IEEE1394/Firewire will provide a solution – and so it might, eventually, but the same promise has been made for years, and ominously in the computer market Firewire is already under threat from competing standards, including a new version of the computer oriented USB system.

Meanwhile the increasingly dinosaur-like amplifier market is beginning to come under pressure from alternative approaches. Just look at the Cyrus package, which throws the whole paraphernalia of video signal handling overboard, and brings in automated ways of setting almost all of the variables. This is surely a sensible way forward when sound quality is an issue.

“Amplifiers are increasingly becoming button festooned monsters.”

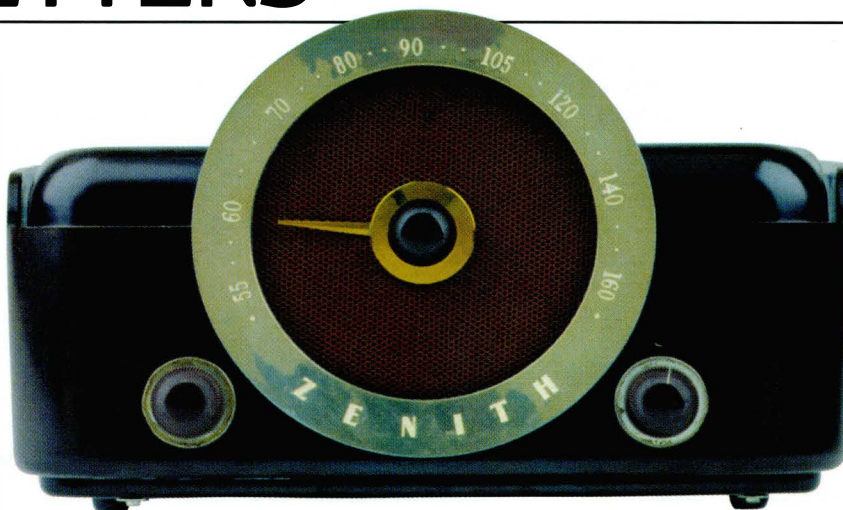
PLAYERS AT A GLANCE

ONKYO TX-DS989	PIONEER VSA-E08	ROKSAN CASPIAN DSP/5-CH	SONY VA777ES	TECHNICS SA-DA10	YAMAHA DSP-AX1	MAKE MODEL NUMBER
£2,499.95	£1,500.00	£2,440.00	£1,499.99	£499.99	£1,995.00	PRICE
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	SOUND VALUE
Authority personified, excellent AV signal processing, but sound quality a tad unsubtle.	THX circuitry gives movies a boost, but this is not an obvious first choice for music.	Clean, powerful stereo expanded seamlessly, if without distinction, to 5.1 channels.	Smart circuitry gives this model unusual precision and transparency, and it is a fine all rounder.	Lower mid-market AV amp has all the right ingredients, but fails to stir the soul.	An anorak's delight, and one of the most flexible and effective soundfield creators ever conceived.	CONCLUSION
2 YEARS	2 YEARS	1 YEAR	1 YEAR	2 YEARS	2 YEARS	GUARANTEE
THE LAB REPORT						
★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	DYNAMIC OUTPUT
★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	SPEAKER LOAD TOLERANCE
★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	AUDIBLE DISTORTION
★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	NOISE
★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	★★★★★★	OVERALL RATING
MEASUREMENTS						
170W	110W	140W	75W	100W	150W	POWER OUTPUT, 8 OHM, 1KHZ (2 CHANNELS)
160W	75W	130W	65W	80W	115W	POWER OUTPUT, 8 OHM, 1KHZ (5 CHANNELS)
+0.8dB	0.1dB	+1.0dB	+0.6dB	+1.3dB	+0.9dB	DYNAMIC HEADROOM, 1KHZ (IHF)
12.5A	14.1A	22.6A	16.9A	11.5A	18.2A	MAXIMUM CURRENT (10MSEC, 1% THD, 1KHZ)
0.02%	0.005%	0.001%	0.003%	0.002%	0.0013%	THD, FRONT @ 0DBW, 1KHZ
0.02%	0.005%	0.002%	0.002%	0.001%	0.0009%	THD, SURROUND @ 0DBW, 1KHZ
90.4/90.3dB	83.1dB/82.3dB	88.0/88.6dB	86.7/76.6dB	91.0/97.5dB	87.5/85.3dB	S/N RATIO, FRONT/SURROUND (A-WTD)

FORUM LETTERS

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the world of hi-fi:
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LETTER OF THE MONTH

**“DAVID VIVIAN WAS PERHAPS
OPERATING CLOSER TO THE
EDGE THAN USUAL WHEN HE
ATTACKED WHICH?”**

HELEN PARKER, EDITOR, *WHICH? – TOUCHÉ*

**“I ADDED IMMEASURABLY TO
THE SOUND QUALITY OF MY
MODEST AND AGEING SYSTEM
WITH TWO SIMPLE AND
INEXPENSIVE CHANGES”**

IRVINE HALL – *TWO SIMPLE STEPS*

**“THE FM VERSUS DAB ARGUMENT
IS CLOSELY ANALOGOUS TO
THE LP/CD SITUATION”**

RICHARD BLACK – *ON THE AIR*

SATELLITE RADIO'S SECOND COMING

I have been involved with satellite radio and TV for two years or so now, thanks to the support of Reg Williamson who has done so much to promote interest in this area. I would like to make some observations of my own.

Norman McLeod is correct in saying that satellite installation is a job for the experts. However, while they will get the dish and LNBS lined up on the required satellites correctly for you, very few, in my experience, know anything about satellite radio. And that also applies to most satellite retailers in this country. Radio is something you have to find out about for yourself. Once you do, you really begin to realise that the famed superior quality of broadcasting in this country is very much a myth, as analogue and digital broadcasts from Germany, Austria, Switzerland, France, Italy, Spain and even Portugal are often better and at least equal to the UK. As a lover of classical music, I find that there are a number of foreign stations whose pro-

gramming leaves Radio 3 very much in the shade. But, there are also dedicated jazz channels and every variety of pop music is catered for as well. Considering that you get TV as an extra, and German TV shows more classical concerts in a weekend than British TV does in three months, then you can't lose.

I also have to say that while Norman's list of suitable receivers will suffice to begin with, to get the best out of satellite radio you really need to get hold of specialist receivers. If you are serious about sound quality, then the German-made receivers are superior to most others on the market. Unlike the ones Norman mentioned all German receivers have digital outputs, as do recent models from the likes of Humax. This is an important consideration if you want to make recordings off air. I would recommend receivers from Technisat, Kathrein and Lemon, particularly the latter as it receives Analogue, DVB (Digital Video Broadcasting) and ADR digital broadcasts. At present, from Astra 1 and Hotbird I can choose from over 300



Letters page sponsored by



TDK's audio CD-R range

at the heart of it

radio stations. Technisat also makes a receiver that streams Dolby Digital from its digital output. All the above receivers are obtainable cheaper direct from Germany than equivalent receivers in the UK and service from specialised outlets such as Satland is superb.

Norman didn't mention that there are two flavours of digital radio available. He mentioned DVB, but there is also ADR, which is in my view marginally superior. This, like analogue radio, is carried via the sound sub-carrier of analogue TV stations. It requires a spe-

cialised ADR receiver, but Technisat makes an ADR-only tuner, for around the £100 mark, that can be added to any make of digital or analogue receiver.

It should also be remembered that you do not need one of Sky's receivers to get the radio stations on Astra 2 as most are free to air and can be picked up on any receiver with an LNB pointing in the right direction. It is feasible to have LNBs on one dish covering Astra 2, Astra 1 and Hotbird. It is even possible to buy LNBs that allow you to

run a number of receivers without having to use expensive switching arrangements.

Hi-fi enthusiasts have missed out for too long on this wonderful resource. Many foreign radio stations make their program schedules available on the Internet while most foreign TV stations also give reduced details via teletext. If anyone is interested I am quite happy to assist anyone wanting more information on satellite radio - my e-mail is mickgolby@beeb.net.
Mick Golby, via e-mail

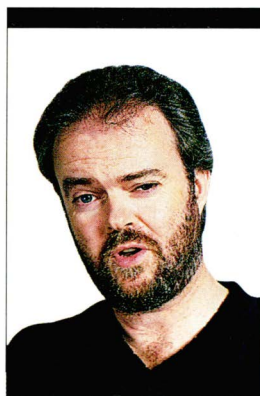
from FM Osaka broadcasts in the 70s which are extremely impressive too, not least because the station's output was completely unprocessed. Apparently they were so proud of their sound quality that on at least one occasion, in the middle of the night, they handed the station over to a bunch of hi-fi maniacs who proceeded to measure the performance of the entire studio-transmitter-transmit/antenna-receive/antenna-tuner chain, treated just like an amplifier or tape deck under review.

Those Japanese, they don't muck about!

Richard Black, via e-mail

"NORMAN McLEOD DIDN'T MENTION THAT THERE ARE TWO FLAVOURS OF DIGITAL RADIO AVAILABLE..."

MICK GOLBY - SATELLITE RADIO'S SECOND COMING
LETTER OF THE MONTH



TOUCHÉ

Your self-confessed 'bearded weirdo operating at the very margins of reality', David Vivian (left), was perhaps operating closer to the edge than usual when he launched his attack on *Which?* magazine (*HFC 208*).

Mr Vivian claims we think 'all CD players sound pretty much the same', their only difference being 'how much they cost and how

many knobs they have'. Tests carried out for all *Which?* reports, including those about CD players, are as stringent as we can make them. Technical tests are combined with blind listening tests carried out in our own listening room. A panel of experts recruited from the audio industry listen to selected tracks, rating performance independently. Repeat runs are included to ensure consistency. The results are analysed to ensure that the ratings are statistically significant before publication. This way, we ensure that any differences are real rather than imaginary.

Which? is a general consumer magazine, not aimed at hi-fi enthusiasts, and our information is accordingly concise. Because our reports have a real consumer angle, of course we include information about price and numbers of knobs as well as sound quality.

Having accused *Which?* of not paying enough attention to detail, maybe David Vivian should try it himself.

Helen Parker, Editor, Which?

ON THE AIR

The FM versus DAB argument is closely analogous to the LP/CD situation: the older format is capable of fantastic results but only when optimised at both ends (aerial and receiver). The DAB solution has its limitations in sound quality but in its basic form it's much, much harder to muck it up completely.

From my experience with FM, using various pretty good tuners and a rotatable five-element Yagi antenna, you'll only get really clean sound if the antenna is pointing within about 5 degrees of the right way - and even then, if you've got incurable multipath due to reflections off buildings etcetera, you'll not win. Far and away the best FM I've ever heard was at a friend's house in Sevenoaks, with a clear line of sight to the Wrotham mast, barely eight miles away. He had an eight-element twig and two or three inline attenuators to cut the resulting signal to levels his Revox could handle. Mind you, reception was so good there that we got very impressive results off a Leak Troughline with about a foot of wire for an antenna. I've heard some tapes taken

TWO SIMPLE STEPS

A few weeks ago I added immeasurably to the sound quality of my modest and ageing system, by making two simple and relatively inexpensive changes.

Firstly, I upgraded the interconnects, from those supplied, to a set costing £50. What an incredible difference! There was a new dimension to the music, and I was, and remain, astounded by the increased clarity and transparency. Fantastic! To anyone that might be investing in hi-fi for the first time (or to any doubting Thomases) let me assure you, £50 or so for a set of interconnects is money very well spent.

Secondly, I invested in a set of headphones. After trying out a number of makes, I chose the Grado SR80s. In their price range, these were the best sounding that I heard, and (to my ears) sounded a lot better than the award winning Grado SR60s, for not much more money.
Irvine Hall, Somerset

FORUM HELP

TANGLED IN A FISTFUL OF CABLES? LOST IN A HI-FI CHAPARRAL? THEN LET NATIVE GUIDE TIM BOWERN LEAD YOU TO SAFETY.

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Hi-Fi Choice
99 Baker Street
London W1U 6FP



SPEAKER PROBLEMS

SHOPPING CENTRE

I'm putting together a multi-channel system and I want to buy Dynaudio speakers – Audience 50s at the front and 40s (pictured) at the rear. The Audience 120 has been recommended for the centre but it's a bit expensive. Can I use the centre from another brand?
Ruud Schoenmaker, The Netherlands

This is an extremely important part of a multichannel set-up. It delivers the bulk of the dialogue in a film, and if you're listening to multichannel music, a mismatched centre will ruin the effect. It's safer to stick with the same brand for the whole system, and follow the advice you've been given.

"THE CENTRE CHANNEL IS AN EXTREMELY IMPORTANT PART OF A MULTICHANNEL SET-UP."

HEADPHONE PROBLEMS

HEAD MASTERED

A few issues ago you tested portable MiniDisc players and the Sharp MT831H was best in test. I've since bought one but I can't stand sticking little headphone things in my ear. Indeed, your review recommended an upgrade in this area, so could you suggest a few headphone alternatives up to £50? My music tastes range from Satie to Roni Size.

John McDowall, Cornwall

A headphone upgrade will benefit sound as well as comfort. The current big thing is the back-band headphone, low-cost models for portable use which clip over the ear and feature a band that goes round the back of your head rather than sitting on top – that way you won't spoil your hair! Models vary in comfort terms but most are more bearable than in-ear headphones; Sony's MDR-G72 is a popular model. However, if you'd rather go the whole hog and venture into traditionally styled hi-fi headphones we'd recommend the AKG K100, Technics RP-F800 or Vivanco SR650.

UPGRADE PROBLEMS

EVERY DOG...

My system comprises an Ariston Maxim CD3 CD player, Pioneer A400 amp and Rogers LS2a/2 speakers. These were all well-rated components in their day, but the overall sound is a little abrasive with massed strings, detail gets lost in complex music and it sounds awful if I crank the volume. I can afford about £500 per component but not all at once.

Steven Harman, Warwickshire

The only way to find the right combination for you is some hefty auditioning with a specialist hi-fi dealer, but here's a suggestion to get you started. Replace the CD player first, with a Rotel RCD-971. Match that with a Primare A10 and then try a couple of different speakers: the AVI Neutron III if your room is small or B&W DM603 S2 (below) for a larger abode.

SPEAKER CHOICES

SOLUS, SO GOOD

I'd like to buy some speakers to go with a Marantz KI-Signature CD player and amp. I can spend up to £1,350 – I heard the Ruark Solus (below) and liked it very much. What else is there?
Twan Theuns, The Netherlands

The Solus is a beautiful stand-mount speaker endowed with good sonic manners and unusually strong bass for its size. If you like it then why not go for it, but do make sure you audition it with the Marantz pairing if you haven't already done so, to check they match up well. You might just find the Solus prefers an amp with a bit more muscle. For alternatives, try the Celestion A1, Dynaudio Contour 1.3 MkII and Jamo Concert 8.



CD PLAYER PROBLEMS

WADIA THINK OF THIS?

I'm looking to replace my CD player. I'm currently using a TEAC VRDS-10, combined with a Tube Technology Unisys valve amp and Shahinian Arc speakers, but I find it a bit fatiguing and lacking resolution and dynamics. I found an ex-dem Wadia 830 for £2,200 but I'm worried about lack of support since the company's demise. I also listened to a Naim CDX but felt it only came alive after adding the offboard power supply, and the cost was too much. I can stretch to about £2,000 – and the Densen B400 and Acoustic Precision Eikos are available locally.

Dr. Tim Ward, via email

£2,000 could get you one of the best CD players around. We'd certainly put the Eikos in that category. You should also try Sony's SCD-777ES (below) – it's not just a brilliant SACD player, it's great with CDs. And you shouldn't write off the Wadia, despite the company's situation. It's likely the brand will soon have a buyer and if you're after dynamics, you can't buy better for that kind of money.



STYLE PROBLEMS

PSST! B&O...

For four years I've been dreaming about Bang & Olufsen. I've saved some money and would like to buy a Beocenter 2300 and a pair of Beolab 8000 speakers. But are they really worth the money?

Marc Engels, The Netherlands

We hate to shatter your dream but the B&O kit you mention wouldn't be our first choice for sound quality. Though many find the style immensely appealing – and in affluent circles B&O gear is often considered to be the height of good taste – you can invariably buy better sound for less. And with style now

firmly on the agenda for most hi-fi companies, you won't have to put up with vastly inferior aesthetics. But we're not going to get sanctimonious about it: if you've fallen in love with B&O, and style is your number one criterion, then fair enough. After all, it's your choice.



UPGRADE PROBLEMS

THE WEAKEST LINK

I would like to upgrade my CD player and my speakers, to go with my NAD C340 amp (pictured). For the CD I'm thinking about the Rotel RCD-991 or Marantz CD-17, and for the speakers Dynaudio Audience 50 or PMC FB1. Would my amp be a weak point in the system?

Dimitri Djuric, via email

If you make these upgrades, your amp *would* become the weakest link. The trick is to make sure the products you choose are good enough to last you a long time, yet amiable enough in technical and sonic terms to match your existing components. From that point of view, we reckon the Rotel and Dynaudio models would be worthy investments. Then, when you've saved up again, it'll be your amp's turn...



AMP PROBLEMS

ALL FROM ONE?



I have an all-Kenwood system, including a DP-7090 CD player and KA-3020SE amp, hooked up to a pair of KEF Coda 9.2 speakers. I've decided my next upgrade should be a new amp, but I'm keen to buy Kenwood to get full system remote control. Which would you recommend: the KAF-3030R, the KA-5090R or KA-7090R?

David Keighley, Bradford

The amp we'd go for is the newer KAF-3030R (left). There's no better £250 amp right now, and it's more refined than its costly stablemates. But give it a listen first to make sure it's worth trading your old amp for – the KA-3020SE was also an excellent budget amp in its day. If you feel inclined to try something from another brand, try NAD's excellent C350. And it might be worth listening to a newer speaker like KEF's Q35.2, to make sure you're changing the right bit.

MULTICHANNEL PROBLEMS

CHANNEL CROSSING

My system includes an Arcam Alpha 8 CD player, Arcam Delta 290 amp, Rega Planar 3 turntable and Mission 751 speakers. I've had it for quite a long time and I'm happy with the sound, but now I'm taken by the urge to integrate home cinema. How can I do this while also continuing to enjoy the hi-fi experience?

Geoff Bailey, via email

You should avoid budget home cinema amps if music is important to you. The most

cost-effective route forward is to add a budget Dolby Digital processor like Yamaha's DSP-E800, which has amplification for the centre and rear channels on board. Beyond that, for a best of both worlds solution you're looking at a much more costly processor/power amp combo like the best models in this month's amp group, or perhaps a good mid-price integrated compromise like the NAD T760. But it won't match your Arcam for stereo.



Speaker matching is important for any such set-up. The safest method is to change

your speakers for a matching package – why not try the Mission 77 Series (above)?

A NEW REALISM—Audio Research

delivered true reference sound quality with its **Reference 1 preamp** and **Reference 600 monoblocs**. A number of customers looking for Reference 600 sound quality have asked for slightly lower output power and a smaller chassis. The new **Reference 300** is the smaller, quieter and cooler answer to these customer's needs.

Good news too for existing Reference 600 customers who can opt for the **MkII factory update** while new-build **Reference 600MkIIs** are now available. The all-valve

Reference 2 stereo line preamp offers the same full microprocessor remote control of volume, balance, record and input selection with both balance and single ended inputs (eight plus full tape loop) and outputs (two main, one tape) as its illustrious predecessor. But all new audio and power supply circuits have advanced the state-of-the-art yet again.

REAL VINYL — LP record lovers will be delighted at the arrival of the **Reference Phono** all-valve phono stage.

The Reference Phono features two sets of inputs one for low-output mc pickups and one for high-output mc and mm designs. Used with the Reference 2 or similar preamp there is enough gain for any cartridge. Flexible loading is offered.

REAL PARTNERS — **Audio Research** introduced the **LS8** in 1997 as an affordable reference-calibre valve preamp. The new MkII version is a pure Class A design with improved component quality, improved isolation feet and chassis damping. The **LS8/II** is a single-ended design. Perfect partner for the **LS8** is the **100.2** solid-state power amp which we believe sets a new standard. Liquid and grain-free, it possesses a fine midrange transparency.

REAL PRIORITY — **Audio Research** has also announced the **125.5** Audiophile Standard Multichannel solid-state power amplifier for home theatre installations. Though coming late to the home theatre market, **Audio Research** believes priority had to be given to audiophile quality sound and delayed introducing a home theatre product until fully happy with the sound quality.

REAL TRADITION — the **PH3 phono preamplifier** is eagerly sought out by those enjoying the renaissance of interest in vinyl. A total of 109 part changes now see the PH3 in Special Edition guise as the **PH3SE**. An upgrade will be available for existing owners.

REALITY CHECK — the all-valve **LS25** brings down the cost of true **Audio Research** high-end performance. This line stage preamplifier can be perceived as a slightly small Reference 1. It is a pure Class A design with

Winning the race

REALISM

Reference 2 all-valve line stage preamplifier
Reference Phono all-valve phono stage
— this is as real as it gets



smooth detailed sound, clean focus and plenty of bass impact. It has the flexibility to integrate with high quality audio and video components. **REAL PERFORMANCE** — the

LS16 preamplifier is for those looking to make a transition into real high-end yet wish to retain the convenience of full remote control of all front panel functions. It offers both singled ended and balanced inputs with microprocessor controlled relays for gain control and switching. Enthusiasts looking for the traditional qualities of an all-valve line preamplifier will find them carried over into the **LS8** which replaces the popular **LS7** and **LS9**.

REAL POWER — The 100 watt per channel **VT100 power amplifier** is a hard-driving amplifier with true-bass slam matched by a liquid mid and top. Its speed and control have to be heard.

Robert J Reina (Stereophile March 1999) concluded his **VT100** review: "This extraordinary amplifier is beginning to make me wonder if current tube technology may once again be edging ahead of solid-state in the race for ultimate sonic realism".

The **VT100 MkII** build features doubled power supply energy storage, cooling fan and valve damping rings. MkII enhancements are available as a factory upgrade for existing owners. The mid-power **VT100** comes between the classic **VT50**, at around £3300, and the mighty **VT200**. Jonathan Valin writing in *Fi* magazine (October 1998) went so far as to rate the **VT200** as: "The best high powered stereo amplifier I've heard — a genuine hi-fi masterwork".

REAL PARTNERSHIP — The **LS16/VT200** pre/power partnership puts excitement back into your music with its detail resolution and dynamic slam.

REAL INTEGRATION — enthusiasts waited a long time for the **CA50** all-valve, remote control integrated amplifier. Conservatively rated at 50 watt per channel the **CA50** is designed to be stunningly musical, handsome in appearance — its styling cues coming from the awesome Reference series — and completely convenient. Audition this important **Audio Research** first and find out why Ken Kessler (Hi-Fi News February 1997) said, "So much for the superiority of separates...".

REAL QUALITY — An entirely new full 20-bit **CD player**, the **CD2**, is styled to match the **CA50**. As a complete player **Audio Research** is convinced the **CD2** can compete with any single or two-box player in the market with its astounding resolution of detail and dynamics.

Don't lose out in the race for sonic realism?—contact **Absolute Sounds** for full information and a list of dealers where you can experience **Audio Research**.

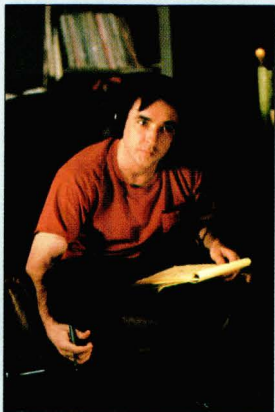


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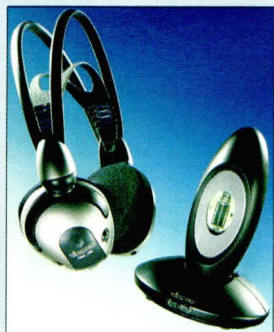


audio research
HIGH DEFINITION®

COMPETITION



For our inaugural www.hifichoice.co.uk competition, we've got 10 pairs of Vivanco FMH 7780 headphones (below) to give away. These new cyberwave sets are the first to feature a transmitter unit with an LED display unit providing users with information on channel modulation, input and battery strength. Ergonomically designed for comfort, they also provide CD quality sound within a 100-metre range. To be in with a chance of winning a pair, simply go to www.hifichoice.co.uk/competition.asp. Just e-mail us a comical caption (on our site entry form) to accompany the above still from the recent hit movie *High Fidelity*. The closing date for entries is 15 December 2000. So if you want to spend the festive period in a mobile world of your own, free of family arguments and carol singers, get your quips onto our site now.



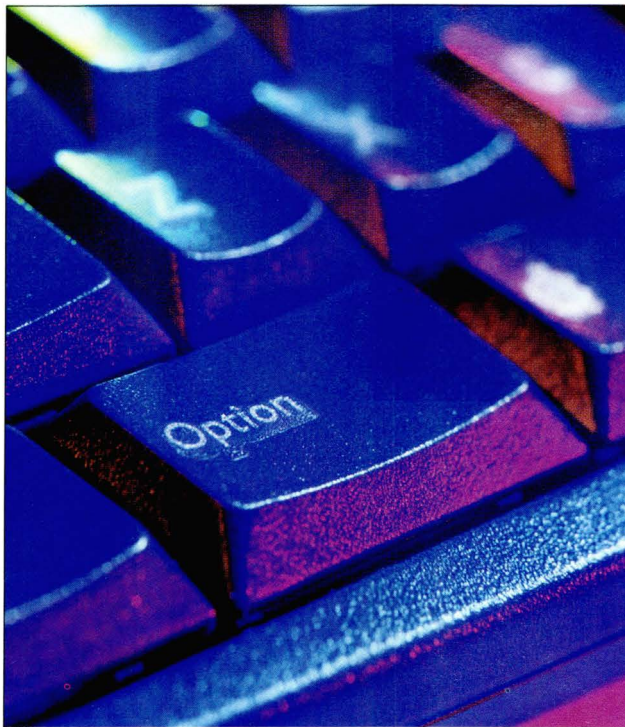
POLL NEWS

IN OUR LATEST ONLINE POLL we asked site visitors to select their favourite UK speaker manufacturer. And with a respectable 43 per cent of the 15,425 votes Wharfedale won, holding off competitors Tannoy (29 per cent), Mission (14 per cent), B&W (11 per cent) and KEF (2 per cent). New online polls are posted fortnightly.

THE VINYL CUT

WHAT ENTHUSIASTS AROUND THE WORLD HAVE BEEN DISCUSSING ON THE CHOICE FORUM THIS MONTH

Our online forum users have been discussing their favourite discs for testing out systems. Choices have been suitably eclectic with one member picking both Boston's eponymous album and Blur's *Modern Life is Rubbish*. Another selected a mix of Grace Jones and Julian Bream but only on vinyl, which they claim "sounds like IMAX compared with the glassy Cinemascope of CD". In another forum topic the same member posted an unusual way of getting that 'cigggyunk' out of your favourite vinyl grooves. After an unsuccessful attempt at soaking the discs in cleaning solution they improvised by adding a dollop of bleach. And with the help of a stylus the offending dirt shifted. You can share your hi-fi tips or views on the audio world by clicking our forum now.



WEBSITE HI-FIVE

EACH MONTH WE'LL BE TAKING A LOOK AT THE BEST MUSIC AND HI-FI SITES ON THE WEB, AND MAYBE A FEW ALTERNATIVES AS WELL.

HI-FI CORNER (www.hificorner.co.uk)

Easy navigation and simple design mark this Scottish hi-fi retailing site out from the competition. Both a feeling for company's history and customer service prevail.

BANG AND OLUFSEN (www.bang-olufsen.com)

This super flash site (left) proves to be as substantial as it is stylish. With good pictures of the Bang and Olufsen range, competitions and search facilities, this is one manufacturer that's using the Web as an inventive marketing tool.

RECORD COLLECTING

(www.helsinki.fi/~tuschno/records)

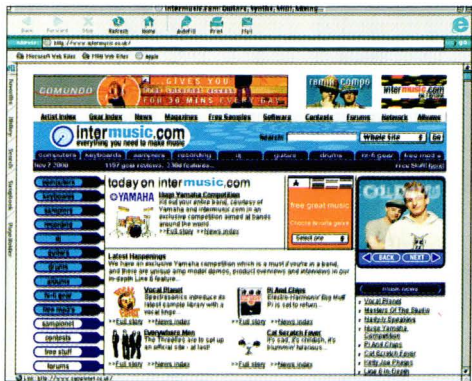
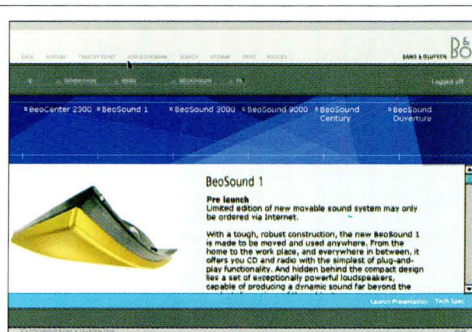
This is basically a links frenzy for CD and records on the Web, it lists by outlet name rather than speciality so you have what must be several thousand sellers from Ace Records to Xcellent Ear Candy. Also included are collectors themselves, discographies etc.

INTERMUSIC (www.intermusic.com)

For all the latest news, reviews and gossip on recording technology, sampling and a million music gadgets, this site (left) can't be bettered. With tons to read, see and do (from competitions to polls) it's the most recent of Future Publishing's stable of music and technology websites – for others see www.futurenet.co.uk.

ABBEY RECORDS (www.abbeyrecords.co.uk)

A useful online source of rare and used vinyl. It has a huge catalogue (from The Auteurs to ZZ Top) which can be searched easily and online credit card ordering is secure.



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Your best foot forward

THE BEACH BOYS MAY HAVE SUNG ABOUT GOOD VIBRATIONS, BUT WHAT DO THEY KNOW? OUR JIMMY, ON THE OTHER HAND...

“THE USE OF TENSIONED CORD IN SHORT RUNS CREATES A TAUT SUPPORT THAT’S NATURALLY POOR AT TRANSMITTING LOW FREQUENCY VIBRATION”



It’s rumoured some audiophiles have had weird and wonderful dreams about suspending their equipment from cords to isolate each component from harmful vibration. Scary thought – your hi-fi swinging from the rafters. For most of us the idea just stays in the realms of fantasy. In the real world, it’s surely far too crazy and impractical to implement such a scheme. Or is it? Maybe all that’s needed is a set of cd-str5 feet...

Designed and made in Germany by Dirk Blotevogels, cd-str5 feet provide a simple, practical means of supporting hi-fi components on a floating suspension. Each device is an 11cm diameter plastic ring laced with a 2.5m length of nylon cord, arranged in a sort of hexagram and held under tension – adjustable as desired. It’s claimed weights up to 100kg can be supported.

At the centre of the spider’s web, there’s a softish foam plastic support pad. But this can be replaced by a brass puck (£3 for a set of four) for those who sit their hi-fi components on spikes or cones, and therefore need a hard support surface. Matching equipment support cones can be bought for £14 per set of four, if required.

Of course, the idea of siting hi-fi components on decoupled supports is hardly new; I’ve played with quite a few in my time, albeit not always with consistent results. However, I do like the cd-str5 feet. They seem to offer most of the advantages (and none of the disadvantages) of decoupling.

The use of tensioned cord in short runs creates a taut support that’s naturally poor at transmitting low frequency vibration. This, and the fact that the whole assembly is extremely light, helps it act as a high-pass filter. Bass stays firm and nimble, while the midband gains warmth and fluidity. Adjustable tension makes it possible to tune the supports to suit the weight of the component being isolated. You can also individually alter tension to compensate for uneven distribution of mass.

The feet proved very easy to install, and I used mine under an Arcam FMJ CD player –

and they brought immediate improvements. The music sounded more relaxed and open, with increased inner clarity and fine detail. There was perhaps a slight loss of forwardness and immediacy, but this was amply compensated for by the extra spaciousness and freedom the music now seemed to have.

There’s an improvement in clarity too. Not in a forward analytical sense, but more in terms of allowing everything to occupy its own space. With two or more solo voices or instruments present at the same time, there’s much less tendency for loud to dominate soft, or high to dominate low. Even when one vocal or instrumental line is louder than everything else, you can more easily follow things in the background when cd-str5 feet are in use.

Although primarily a component support, cd-str5 feet can be used under loudspeakers too. You’d definitely need to replace the soft centre inserts with brass pucks, especially if using spikes, and (probably) increase string tension to compensate for the extra weight. Having only one set of feet and no pucks, I haven’t yet had an opportunity to try the cd-str5s under speakers. Which is perhaps just as well; my Impulse H-1 horns are a bit on the big side! Nevertheless, I feel certain they’re going to work under smaller loudspeakers, and work well.

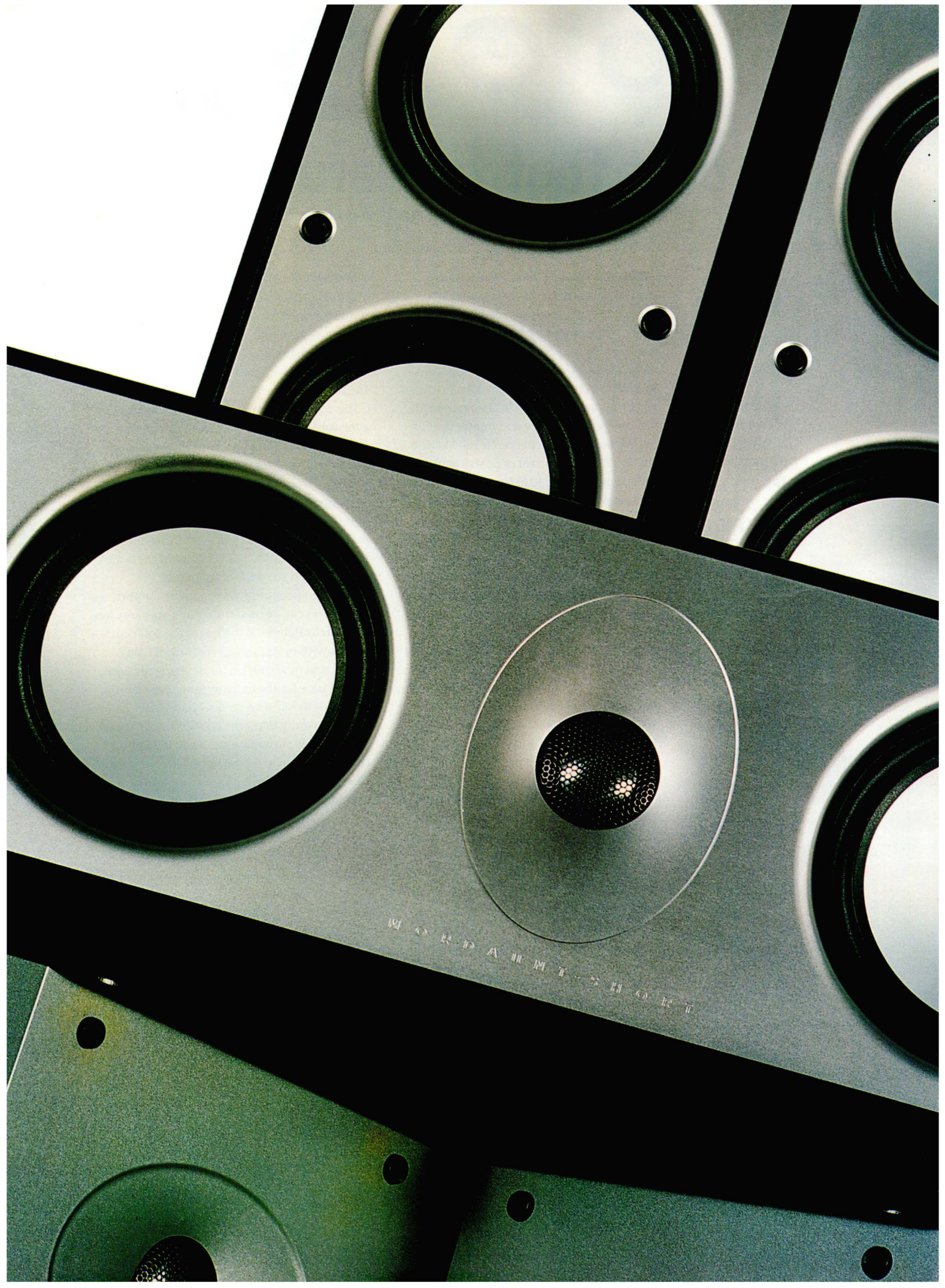
A set of four cd-str5 feet can be obtained for a very realistic £59, including VAT and P&P. Moreover, as they’re available on a money-back-if-not-delighted one-month trial basis, you can order without risk.

Order from: cd-str5, 1 Mortimer Cottages, Mortimer’s Cross (Nr. Leonminster), Herefordshire, HR6 9TG.

Cheques payable to B. A. Thomas

E-mail: cd-str5@talk21.com

Jimmy Hughes is the king of the tweekers, oh – the fine-tune VIP. He never tires of monkeying around...



MORDAUNT-SHORT

SURROUND SOUND SPEAKERS

WITH MULTICHANNEL MUSIC MUSCLING IN ON HOME CINEMA, PAUL MESSENGER LOOKS AT SOME SERIOUS SURROUND SOUND SPEAKERS.

It's still early days for surround sound music programming, but movies have already set the multichannel agenda, and the very existence of increasing numbers of movie-oriented surround sound systems out there in Consumerland is bound to encourage more releases of surround sound music discs.

From a loudspeaker perspective the main left and right front channels remain the same as for a stereo system. Ideally, three more of the same loudspeakers can then be used for the extra three channels, so that consistent 'voicing' is achieved all round, but to take account of 'real world' practicalities, specialist types of loudspeaker have evolved.

The centre-front channel poses the biggest problems, as this speaker usually has to be placed on its side and slotted into position either above or below the TV, which makes it quite difficult to get a good 'voice match', and the problems are compounded by the need to support the speaker properly (a plastic TV set is no substitute for a dedicated speaker stand). For movie work in particular, this channel needs plenty of headroom and power handling, and magnetic shielding is also mandatory.

The surround channels are always tricky to site, so a number of models are shaped and supplied with brackets for wall mounting. Because the surround speakers may well be closer to the listening zone than the front speakers, a slightly 'duller' balance might well be preferable. Alternatively (though usually rather more expensively), dipole-type speakers create a more diffuse sound radiation, which some listeners might prefer.

Subwoofers might be popular with movie fans, but are often better avoided for music reproduction, especially if good size speakers with decent bass extension are used for the main left/right front channels.

The multichannel speaker package is increasingly falling into a stereotype that combines a pair of floor-standers for front left/right channels with a slim-line 'horizontal' speaker based on similar drivers for the centre. The surround speakers show much wider variations, including conventional compact two-ways, dipoles, or specially shaped wall mounters.

THE PLAYERS

JAMO CONCERT D8	£2,500.00
JBL XT1	£1,100.00
KEF Q-SERIES	£849.99
MIRAGE OM	£1,999.70
MISSION CINEMA 8	£1,399.99
MONITOR AUDIO SILVER	£1,000.00
MORDAUNT-SHORT	
DECLARATION 500	£1,599.99
PMC FB1/TB2	£2,200.00
REGA JURA/ARA/SENTA	£915.00
TANNOY MXAV4	£499.90

OTHER EQUIPMENT USED

Naim CDSII CD player
 Pioneer DV-717 DVD player
 Naim NAC52/NAP500 amplifiers
 TAG McLaren AV32R surround processor
 TAG McLaren 100x5R power amp
 Bryston SB power amp
 Chord Rumour 2 speaker cable
 Chord Chameleon interconnects
 Kudos S100 speaker stands

MUSIC USED IN REVIEWS

Underworld - *Everything*
 Everything (Live)
 Bonny Raitt - *Road Tested*
 Lyle Lovett - *Joshua Judges Ruth*
 Mickey Hart and
 Planet Drum - *Indoscrub*
 Debussy - *Images for Orchestra*
 (Collection)



Jamo's classy Concert 8 surround sound package sounds as swish as it looks.

"IN A FOREST OF FLOORSTANDERS, THE CONCERT 8s WERE A BREATH OF FRESH AIR."

JAMO CONCERT D8 PACKAGE + CENTER

CONTACT 01788 556777 www.jamo.co.uk **GUARANTEE** 2 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£2,500.00**

The most expensive package in this group test, Jamo's £2,500 Concert 8 system is also unique in using stand-mount speakers all round – which of course means you're going to need a decent pair of stands for the main left/right speakers too.

Floorstanders are fashionable right now, and do potentially offer greater bass extension, but their larger enclosures also lead to greater cabinet coloration. There's still plenty of mileage in the high performance stand-mount, and the Concert 8s are certainly that. They're not excessively large, but they are exceedingly heavy, and expensive (at £1,400 per pair), and use a very classy looking 120mm-cone main driver indeed. They're also particularly well turned out, in a lustrous real wood veneer with attractively post-formed edges around the ultra-thick front panel.

The Concert Center makes a good cosmetic match for the Concert 8s, though it's a rather bulky-looking object to perch

on the top of even a 36-inch TV set, and a pricey proposition at £550. It's again very solidly built, but doesn't share the same drivers. Instead there are two rather more prosaic looking 120mm-cone main drivers, plus a horn-loaded 32mm 'squawker' and 25mm tweeter.

The very compact Concert Surrounds are again pricey at £550/pr, and again feel surprisingly heavy. This is probably because they're delta-shaped, with two main drivers and two tweeters in each, though they operate as monopoles not dipoles, helpfully aiming the direct sound from each baffle away from the listener. Matching real wood trim adds tasteful decoration, and the grille treatment is very neat.

Despite their small size, the Concert 8s actually deliver quite decent in-room bass to below 40Hz, though the Concert Center is probably better designated 'small' (in bass extension terms), despite its not inconsiderable bulk. Being compact dipoles, bass extension of the Concert Surrounds is necessarily limited, and they too should be designated 'small'.

SOUND QUALITY

Amidst a forest of floorstanders, the Concert 8s were a breath of fresh air – or at least showed a refreshing freedom from boxiness. While it's important to bear in mind that this pair of speakers costs as much as the average system price of the test group, there's no denying that they sound just as classy as they look. They may not have the deepest bass around, but they are unusually clean and agile, and they have impressive authority and drive. The midband has lovely tonality, albeit with some upper-mid projection and occasional 'pinched' voice coloration. The presence is a slightly dulled and the top a tad obvious, but these speakers are such a pleasure to listen to because the whole has such fine coherence, dynamic expression, grip and focus.

Even though its tonal balance is broadly similar, the Center simply lacks the easy articulation and exuberant intelligibility of the Concert 8. It sounds a bit chesty and not as coherent, and the net result is rather underwhelming. In contrast, the Surrounds are just a little too asserting, with a degree of 'forwardness' that was a little too inclined to draw attention to itself with full 5.1 channel discrete music material. As a result, when the system was operating in full surround mode I found myself tending to ignore the Center and become distracted by the Surrounds whilst trying to get all the cues I could from the main stereo pair.

CONCLUSION

This is an expensive system, but also a rather uneven one. I'm really impressed by the Concert 8 stand-mounts, which make such a delightfully informative stereo speaker system that they alone would seem to justify the high price simply on entertainment grounds. I'm much less taken by the contribution from that very bulky Center, and while the Surrounds look very neat, they didn't really seem to match the performance of the main fronts either.



JBL XTI

CONTACT 01908 317707 www.jbl.com **GUARANTEE** 2 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£1,100.00**

HI-FI CHOICE BESTBUY

Based on the company's recently introduced Xti-series components, a total package price of £1,100 puts this Danish built JBL combo comfortably below the group average (c. £1,400), and the five units involved are very good looking, nicely finished in a polished, high quality wood veneer.

The hexagonal box shape is strikingly attractive, and also makes good sense from an acoustic point of view, in helping to disperse internal standing waves. The Xtis are deeper than their width, and the shaping somehow makes them look slimmer than they actually are. The enclosures are built from two tryptich 'half-wraps', one for the front the other for the back; they meet at the widest point of the sides, where a black rubber strip fills the gap, and looks neat too.

The main front left/right 'stereo' channels are handled by the Xti40 (£500/pr), a compact floorstanding two-way which sits low to the ground and feels very stable on its deep footprint. It comes fitted with little rubber feet, but these can be peeled off and replaced by the supplied 6mm spikes. The main driver has a 6.5-inch frame and 120mm plastic cone, while the tweeter is one of JBL's traditional 25mm titanium domes.

Supplied for surround channel duties, the same drivers are found in the stand-mount Xti20, and indeed pretty much the same cabinet too. The only difference is that the 40 stands 82cms off the deck, where the 20 is only 39cm tall. You only save £100 with this £400/pr stand-mount, and you could easily spend more than that on the partnering stands. While it's obviously nice to have such a close cosmetic match between fronts and surrounds, I'm not sure the Xti20 is particularly suited to the latter role, because it's quite a deep loudspeaker and it has been aligned for free space siting.

I'm more impressed by the £200 centre-front Xti10C, which is a slimmer version of the same shape, with twin 95mm cone main drivers. The clever bit is the way it balances on the mid-side edge, so you can tilt it up from a low set TV, or down from a taller rear-projector. With their ports tuned between 50Hz and 60Hz, none of these speakers is going to supply particularly deep bass, though there's lots of mid and upper bass on offer.

SOUND QUALITY

After a few initial reservations, I grew increasingly fond of the Xti40. It doesn't do a great deal to reproduce the weight and scale of the bottom octave, but it does more than punch its way through the rest of the bass region, bringing an

admirable combination of propulsive drive and authority to whatever's going on. The balance is cautious, and might perhaps be a little too restrained through the voice band for some tastes, with slightly 'pinched' coloration, but the sound stays consistently tidy and well controlled, and has fine basic coherence and communication skills.

What was quite clearly a class speaker system in stereo worked, if anything, even better in full surround sound mode. Once again, the Xtis' total feeling of solidity and authority stood out comfortably ahead of the pack, and while it is true that the Xti10C centre is a little brighter and more obvious than the 40s on either side, the 20s worked really well (sonically, rather than visually) at adding the surround tension and drama.

CONCLUSION

While the Xti20s might be a bit pricey and bulky for surround sound duties, there's no question that this is a fine sounding and good looking package at a pretty sharp price, which adds up to a Best Buy rating.



The Xtis' hexagonal shape helps disperse standing waves – and it looks pretty funky too.

“THE XTIS’ TOTAL FEELING OF AUTHORITY STOOD OUT COMFORTABLY AHEAD OF THE PACK.”





KEF's Q-series surround sound package: probably better suited to movie-lovers.

KEF Q-SERIES

CONTACT 01753 680868 www.kef.co.uk **GUARANTEE** 5 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£849.99**

The Q-series, in its various manifestations, has been the cornerstone of KEF's mainstream speaker ranges for more than a decade, named after the company's proprietary 'Uni-Q' co-axial driver technology. In this 5-channel surround sound package, you get five (presumably identical) 'point two-series' Uni-Qs, based on a 7-inch chassis and 125mm polymer cone, but these speakers are packaged in very differently sized and shaped enclosures according to their role. The main left and right 'stereo' channels are handled by KEF's new £500 Q55.2 compact floorstanders, which are the next model up from the Q35 (the ones that got Tim Bower quite excited in last October's issue). These have the regulation Uni-Qs for full range duties, but an extra similar size conventional driver is mounted just below, to give some extra bass alongside the generous port. The box may only be vinyl finished, but it's definitely one of the better woodprints around. Substantial 8mm floor spikes are supplied.

"YOU WOULDN'T EXACTLY CALL THE KEFS PRETTY, BUT THEY'RE SMALL AND LOOK EFFECTIVE ENOUGH."

Co-axial drivers are naturals for centre-front channel use, and in the very earliest days of emerging home cinema, KEF came up with a very elegant irregularly shaped box, finished in textured charcoal grey – a design that has always looked better than the competition when perched on top of a TV set. There have been a few detail changes over the years since, but this £200 Q95C remains one of the most discreet and attractive solutions to the difficulty of aesthetically integrating a centre speaker. The small box (driver/box resonance at c90Hz) indicates it should be designated as 'small'.

Considerably smaller still are the Q85S.2s (£180/pr) which do the surround thing. They are housed in small moulded enclosures which come with the requisite brackets for mounting up on the wall and discreetly out of the way. You wouldn't exactly call them pretty, but they are small and look effective enough.

SOUND QUALITY

Stereophonically, the Q55.2s do have a slightly 'thumpy' tone to their character, which might or might not be to taste depending on personal preference. The bottom end could perhaps have more grip and drive, and it sometimes seems to lack a sense of purpose, but the tonal balance is nonetheless quite warm and full, and the midband has a decent measure of dynamic expression. There's also some untidiness: this speaker has an involving sense of excitement, but 'smoothie' is not its middle name. Stereo focus is particularly good, although the top end is just a little exposed and obvious, in part because the upper mid 'voice' band is rather laid back and restrained.

Moving on to the full surround sound monty, I've no quarrel with the centre and surround speakers *per se*, and they match each other very closely indeed – but all three are just that little bit brighter and more forward than the Q55.2, and therefore tend to draw attention away from the stereo pair. For the centre 'dialogue' channel this might be helpful when replaying movies, but it's a trifle obtrusive with music. This is even more noticeable for the surround speakers, which I would try to avoid pointing towards the listening zone (not easy with the supplied brackets).

CONCLUSION

A bit of a mixed bag, this Q package is a tad unruly, and the main front left and right speakers have slightly too heavy a character for ideal music replay (but that in turn will probably be welcomed by movie fans). I can't help wondering whether a pair of Q35.2s might have made a better total system match than these Q55.2s, while the slight brightness excess of the centre and surround channels loses a couple of points too. On the plus side it's not an expensive system, and is unusually lounge friendly too, as well as being quite a lot of fun sonically.

MIRAGE OM

CONTACT 01473 240205 www.miragespeakers.com **GUARANTEE** 5 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£1,999.70**

Although *HFC* recently tested a conventional 'forward firing' Mirage FRX7 loudspeaker, this Canadian brand is much better known for its so-called 'bi-polar' models, three of which feature in this surround sound package. The term bi-polar is perhaps a shade misleading, as it has nothing whatever to do the 'di-pole' principle often used for surround channel speakers. These 'bi-poles' are actually omni-directional monopoles, different from conventional box loudspeakers only in duplicating the forward facing drivers with more of the same firing out of the back. As a result, the sound reaching the listeners contains a rather richer mixture of reflected sounds than a conventional 'forward firing' design. However, although the obvious consequence of 'bi-polarity' is acoustic, there is an additional benefit in the way that the mechanical forces tend to oppose and cancel each other out.

The £999.90/pr OM-10-1 is a large floorstander, standing an imposing 118cm tall and elegantly tapering from base to top and finished all round in black grille cloth, topped by a little black lacquer panel (which doesn't fit too well). There are two 6.5-inch main drivers and two tweeters in each, firing forwards and backwards like two two-ways, back-to-back, while a massive port (tuned to 35Hz) loads the enclosure.

The centre OM-C2 is not much smaller, costs a considerable £599.90, and also features a bi-polar driver array, the rearward baffle slanted backwards to project the sound a little upwards. With the size of the box, and port tuned here to 50Hz, there's sufficient bass output to designate it as 'large'.

In complete contrast, the OM-R2 surround speaker (£399.90/pr) is a tiny little wall-mount, finished in white painted wood and with a white grill. It has a three-part front panel, with a main driver facing forward and a tweeter on each of the angled sections, which should ensure that high frequencies will not be beamed directly towards the listening zone.

SOUND QUALITY

An omni-directional speaker gives a quality of sound which is inevitably rather different from conventional designs – rather dramatically so in the case of the OM-10-1s. What did catch me completely by surprise is that this loudspeaker performs absolutely magnificently – in mono! Just plonk it down anywhere and it'll fill the room with sound. And it really rocks too, with quite magnificent dynamic expression. Awesome stuff, on rock/dance type material at least.

Move onto stereo and check out speech and the classical repertoire, and things are rather less clear cut. Concentrate on the imaging and you're very conscious of a loss of focus and precision compared to 'forward firing' types, and the echoey extra contribution from the listening room. For all its dynamic virtues, it has tendencies to honk and boom that lead to obvious coloration with naturally recorded material, while voices are a little 'shut in'.

A major plus is that the centre speaker matches the left and right front towers remarkably well – you could probably swap them over and not notice the difference. The second surprise was that moving on to full surround seemed just a little disappointing. Maybe the extra interaction with the room somehow diluted the effectiveness of the recorded surround acoustic, but it also seemed to highlight a tendency towards bass thumpiness that began to get a tad wearing. That being said, the system still sounds pleasantly coherent, with decent scale, dynamic range and expression, and good wrap-around surround effects.

CONCLUSION

Very different from the norm, and very invigorating in its way, the Mirage is great fun dynamically, but relatively poor on neutrality. Formal Recommendation may not be appropriate, but it's certainly worth an audition, as there are some who will like what it does a lot.



Stocking clad Canadian rockers with plenty of drive units but rather a lot of character.

"INVIGORATING IN ITS WAY, THE MIRAGE IS FUN DYNAMICALLY - BUT POOR ON NEUTRALITY."





Mission's Cinema 8 crew, our cover star this issue – and gorgeously worthy it is, too!

MISSION CINEMA 8

CONTACT 01480 451777 www.mission.co.uk **GUARANTEE** 2 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£1,399.99**

Mission has always made great looking speakers. Most of them sound pretty good as well, but it's the cosmetics that somehow always manage to stand out ahead of the chasing pack. If that's an important ingredient in a pair of stereo speakers – and it certainly seems to be, if you talk to the hi-fi dealers – then it's considerably more important when you're trying to find space for five (or more!) sound channels.

The 78-series is Mission's latest top-of-the-line range, beautifully styled and finished in a lovely light real wood veneer. The complete 5-channel package here is called the Cinema 8, and costs £1,400 in all, which is just about the average for this test group. Half of this figure is allocated to the pair of floorstanding 3-way 782s, reviewed and Recommended in *HFC* 198, which are used for the main left and right channels. The solitary 78C centre speaker costs a

considerable £350 (i.e. the same price as each floorstander), while the two surrounds add the final £350 to the total.

Each speaker, in its own way, has been given a healthy dose of Mission's secret magic styling potion. Though heftily built, the 782s are just about the slimmest and most compact floorstanders around, a feat achieved in part by opting for a three-way driver line up, and fitting a decent size bass driver into one of the side panels, low down near the floor. The front panel therefore only needs to be wide enough to accommodate the midrange driver, with its small 90mm Keraform cone, and its heavily chamfered front edges further minimise the perceived bulk.

The 78C is a chunky squared off affair, but the cleverly shaped end-cheeks and grille echo the neat grille treatment of the 782s, so the three front speakers look nicely complementary. Although this speaker seems pricey, look underneath the grille and you'll find two Keraform main drivers flanking a vertical array of three tweeters. Cleverest of all, perhaps, is the 78DS surrounds, which look like a couple of elegantly framed black pictures, only the middle section bulges out. There are two main drivers and two tweeters in each of these, as well as a little port, though they operate as monopoles, not dipoles.

“EACH SPEAKER HAS BEEN GIVEN A HEALTHY DOSE OF MISSION'S SECRET MAGIC STYLING POTION.”

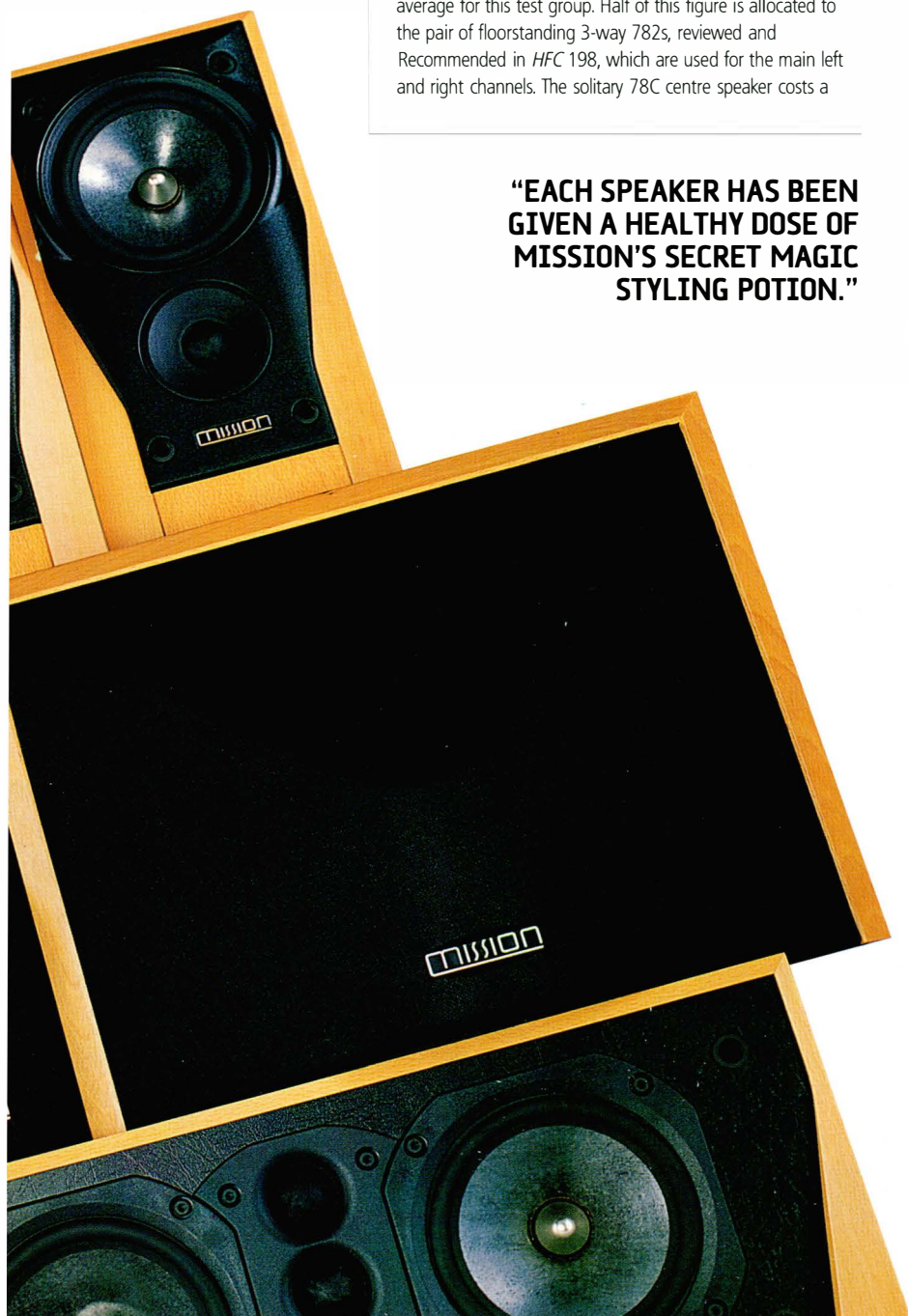
SOUND QUALITY

The 782s are pleasantly balanced with no obvious nasties, but they are also a bit feckless dynamically. When the speaker was originally reviewed, it proved difficult to get ideal in-room bass balance and integration with this speaker, and having a second stab at the design hasn't changed things significantly. The bottom end here somehow lacks punch and drive. It seems to be going through the motions, rather than giving the butt a good kicking when the material demands. It's all very polite, but rather soft and gentle – and because it's not really nasty enough, there's not enough dynamic tension in the music.

The centre speaker has slightly more 'body' and 'chest' than the 782, and less 'air' too, but it's a good basic character match, which is what really seems to matter most. Indeed, the whole system does a pretty good job in full surround sound mode, as the 78DS is a notably good surround speaker. It still lacks a little something in dynamic drama and tension, but does the space and coherence bit pretty well, and is always nice and relaxing to listen too, if a bit lightweight and lacking in muscle and slam.

CONCLUSION

On a pure sound-for-pound standing, Mission's Cinema 8 comes out looking a tad pricey, but if style is one of your prime criteria it deserves very serious consideration. You're unlikely to find speakers to match the sheer elegance of the 782, the clever mimicry in the 78C, and the superb discretion of 78DS.



MONITOR AUDIO SILVER

CONTACT 01223 242898 www.monitoraudio.co.uk **GUARANTEE** 3 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£1,000.00**

It's nearly three years since Monitor Audio came under new management, and nearly two since we first came across the Silver series, in the form of the Silver 3 stand-mount. Now the Silvers are back, this time in 5-channel form, and with an 'i' suffix indicating that improvements have taken place. This package follows the increasingly familiar approach of combining a pair of floorstanding Silver 5is (£449.95) with a single £299.95 Silver Centre 10i and a pair of stand-mount Silver 3is (£279.95). There's a modest discount in the complete system price of £1,000, which seems pretty reasonable considering the high standards of engineering and finish.

Core components throughout the range include a very nice line in real wood veneer cabinetwork, with neat chamfering around the front edge to soften the appearance slightly, and carefully flush-mounted drivers. The driver frames cleverly incorporate the grille mounting lugs, avoiding the unsightly pockmarks found on many wooden baffles. The drivers themselves look very striking. 5.5-inch frame main units and 25mm tweeters are used throughout. The former have shielded magnets, polymer frames and silver 95mm C-CAM cones – a ceramic-coated aluminium/magnesium alloy – topped off with a gilt alloy central dome. The tweeters are also gilt alloy domes, with mesh protection, while the crossovers use laminated-core inductors and polypropylene capacitors.

The Silver 5i is the classic 'two-and-a-half-way' floorstander. It uses two of the 5.5-inch units, one as a bass/midrange driver operating right up to the 3.2kHz crossover, the other just to reinforce the bass and lower midband, rolling off above 600Hz. The box feels very solid, is port-loaded at the rear, and has a separate lower chamber for adding mass damping. A separate over-size black plinth enhances both appearance and stability.

The Silver Centre 10i has the same driver line-up as the 5i, packaged in a much smaller box, which rather begs the question why it costs one third more than its larger stablemate. The Silver 3i is a classic two-way front-ported stand-mount.

SOUND QUALITY

For all their classy engineering, the Silvers still don't manage to hit the spot sonically, for this reviewer at least. The first impression is that they're rather bright and shiny, to the point of tizziness with the wrong sort of programme or source. In fact, in stereo mode and with my sweetest vinyl sources, the top end seemed to work well enough, but Dolby Digital Metallica on DVD made a far less happy match. One can therefore fairly argue that the tweeter is merely highlighting the limitations of data-reduced digital material.

Indeed, the inadequacies through the bass and lower mid-band are much more of a problem. Dynamics just aren't dynamic: they sound softened and constrained, and there's little sense of drive, tension or transparency. On the positive side, images are well focused, and the sound is basically clean

and tidy, but that doesn't really make up for a bottom end that seems curiously lacking in weight, scale and information. The centre speaker made a pretty good voice match for the left and right fronts, but with some added midband 'honk'. The full surround experience was predictably dominated by the exposed top end, to the point where I resorted to rotating the surround speakers through 90 degrees so the tweeters were pointing towards the wall (to quite good effect).

CONCLUSION

While this system undoubtedly looks great – demure or flash, according to taste and whether you keep the covers over the drive units – its sonic performance didn't really hit the spot for me, especially with the 5.1 channel Dolby Digital surround material used in the test.



Lovely build, sexy drivers but better suited to two channel than surround formats.

“FOR ALL THEIR CLASSY ENGINEERING, THE SILVERS STILL DON'T HIT THE SPOT.”





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TIMESPLITTERS



MORDAUNT-SHORT DECLARATION 500

CONTACT 020 7940 2200 www.richersounds.co.uk **GUARANTEE** 1 YEAR

SOUND ★★★★★ **VALUE** ★★★★★ **£1,599.99**

HI-FI CHOICE RECOMMENDED

A rather effective combination of shiny metal and black vinyl woodprint, Mordaunt-Short's Declaration 500 package costs the princely sum of £1,600, but in terms of features and engineering content it's way ahead of the pack. In fact the system carries full THX Select certification for movie replay, but has also apparently been carefully voiced to do a good job with music material. At the time of writing, it's only available as complete package from UK distributor Richer Sounds.

At the core are the exceedingly hefty yet very slim MS 502 'power towers' used for the main front channels. Two main drivers with small 100mm diameter metal diaphragms, plus a 25mm metal dome are mounted on the front, while on the (out)side there's a big 10-inch bass driver driven by an internal amplifier. Various input and filtering options include an interesting feature which can be used to 'notch out' the worst room mode with the help of a supplied test CD.

The 504 centre speaker is a horizontal version of the 502, with similar drivers, metal baffle cover and hefty build, but leaving out the powered subwoofer section. The 506s are delta-shaped dipoles, again substantially built, with twin main drivers and tweeters in each. The front panels here are painted silver, but still look very good, though arguably better with the grilles on.

The twin built-in powered subwoofers might add an extra dimension to this system, but they're also an extra complication. I started off treating them as 'large' front speakers, switching off the processor's subwoofer feed and letting the subs use their internal filtering to take their signal from the high level left and right speaker drive. However, the front-mounted main drivers also go deep into the bass, and this threw up phase cancellation problems. With the subs nominally in phase, there was considerable cancellation below 100Hz; setting them nominally out of phase moved the cancellation up to the mid/upper-bass (70-150Hz). Neither situation was satisfactory. Mordaunt-Short designer Graham Foy suggested I should use the line-level subwoofer feed from the AV processor, and this wrought a substantial improvement, though there was still a bit of a 'hole' in the upper bass.

SOUND QUALITY

Despite the difficulties experienced in getting the bass end working properly, this speaker still impressed from the outset, for its very clean sound, good coherence and wide dynamic range. Essentially laid back, it could have livelier dynamics, and voices do sound a bit 'shut in', with a touch of nasality, but it brings a fine sense of scale to the party and likes being worked hard.

The centre speaker is a little more 'forward' and explicit than the main stereo pair, with slightly sharper focus, but this didn't seem to be a problem in surround sound mode, perhaps because all three sound commendably clean. The surround speakers didn't look too good on measurement, but they sounded great, and certainly reminded me of the bene-

fits of a dipole approach in filling in the soundfield without becoming distracting. Even after the bass business was sorted, the sound remained a bit lean in upper bass, which, along with the laid back presence, provided plenty of encouragement to turn up the wick and take advantage of the wide dynamic range.

CONCLUSION

This review involved more than its fair share of trials and tribulations, and the system is not without its idiosyncrasies. It's not the simplest to set up – that phase switch always adds an element of uncertainty, and the subs should only be used via line/.1 inputs. But in the final analysis I found myself impressed, not only by the sheer amount of engineering involved, but also by the sound quantity and quality.



A bit cranky to set-up, but certainly impressive when they're up and running.

"THIS SPEAKER IMPRESSED FROM THE OUTSET, WITH ITS CLEAN SOUND AND WIDE DYNAMIC RANGE."

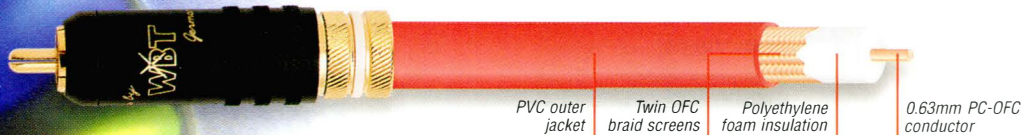




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HI-FI CHOICE RECOMMENDED 06/94

IXOS 106 Fibre Optic available in 1m or 2m

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SOUND ★★★★★ **VALUE** ★★★★★ **£2,200.00**

HI-FI CHOICE RECOMMENDED



Because they're worth it – the PMCs might be a little pricey, but they do the business.

Although PMC has been responsible for equipping a number of Hollywood sound studios, this move into domestic 5-channel surround sound speaker packages is fairly recent – albeit based on some well established designs. At £2,200, it's one of the more expensive packages in the group, but these are generously built speakers, handsomely finished in a choice of real wood veneers. At its heart, taking responsibility for the main front left/right channels (and by implication any stereo material) is a pair of the estimable FB1s, an attractively slim and rather tall £1,275/pr floorstander which received a Best Buy in *HFC* 204. Delivering the centre and surround channels here is an apparently new model called the TB2, though in fact it's essentially a slightly reworked variation on the familiar TB1 stand-mount model (also rated Best Buy in *HFC*s 160 and 177).

FB1 and TB1/2 have always shared the same two-way driver line-up, the essential change from TB1 to TB2 consisting of largely cosmetic changes to the cabinetwork, replacing the TB1's sharp-edged, black-painted front panel with a veneered panel with radiused edges, matching the style used for the FB1. There's a bit of a price hike involved too, as the TB2 costs £600/pr (up from the TB1's £480), while the 'horizontal' TB2 *M/C*, magnetically shielded for centre-front use and with a re-worked grille, costs £325.

I've no quarrel at all with the FB1s, which are aesthetically and sonically well suited to British lounges, but the TB2 is a rather bulky speaker, visually speaking, for both dialogue and surround duties. There's the advantage that you can specify 'large' to your processor, but you do have to find room for the things. Incidentally, it might be worth contemplating one of the less expensive, pro-finish, all-black TB1s for the centre-front (assuming it's available in an *M/C* version). The Vifa drivers used throughout are quality items, the main driver using a 170mm cast alloy frame with a 125mm doped paper cone, while the tweeter has a 25mm metal dome with protective phase compensator. Bi-wire/-amp terminals are fitted to all five speakers.

SOUND QUALITY

The FB1 remains a lovely speaker, delivering a truly big scale sound alongside a deftly balanced voice band, which blends smoothness with detail and a fine, delicate transparency. It has a wide dynamic range and good expression, and the bass just goes on down, without getting boomy or uncontrolled, yet still delivering plenty of weight and unusually clear analysis of what's going on down in the nether regions. The overall balance is a little lighter, more forward and brighter than the TB2, but it has sufficient restraint to avoid harshness and aggression even when it's being worked hard.

Although the TB2 is slightly more laid back in tonal balance than the FB1, this didn't seem in any way distracting when all five channels were up and running. Indeed, the basic good quality of the TB2 was easy enough to hear, and it seemed to complement the tall floorstanders very well. Even the

surround speakers, which often tend to sound more 'obvious' because they are closer to the listening zone, seemed to get on with their job unobtrusively. The whole surround package just filled the room, with plenty of scale and a fully coherent wraparound which conveyed the recorded acoustic very convincingly. It might have been a little short of dynamic tension perhaps, but that's a minor quibble over a very satisfying sound system.

CONCLUSION

One might fairly criticise this PMC system for being both a little pricey, and also a little bulky. But the bottom line is that it delivers the goods sonically, in multichannel but even more so in stereo mode, with the sort of subtlety and delicacy that's likely to have strong audiophile appeal.

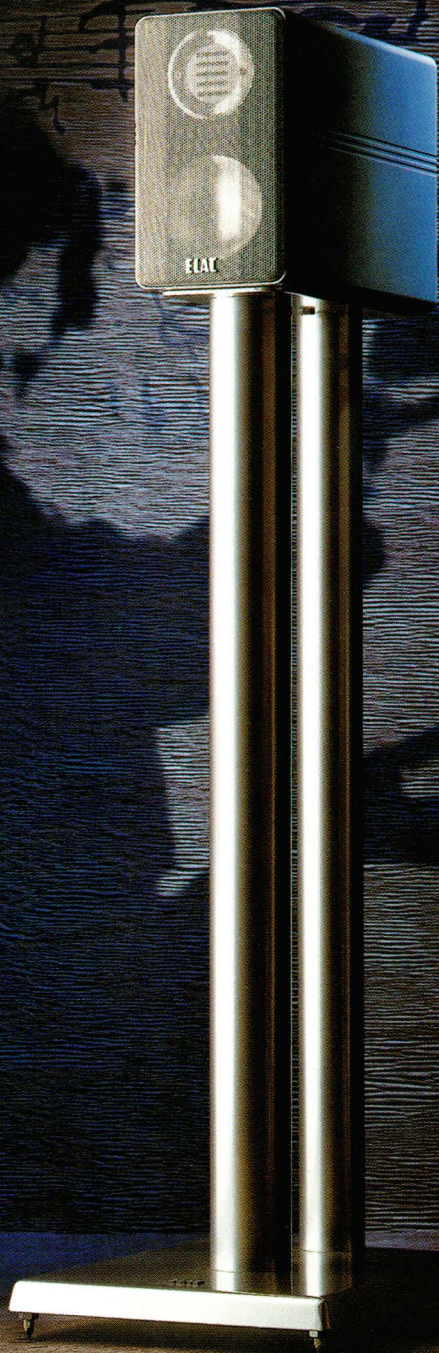
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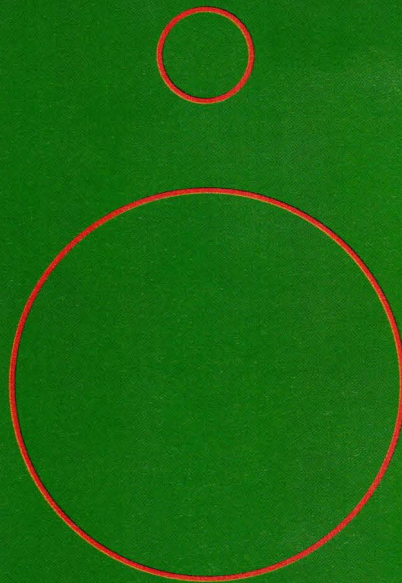
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SOUND ★★★★★ **VALUE** ★★★★★ **£915.00**

HI-FI CHOICE RECOMMENDED

A full line specialist manufacturer based in Southend, Rega has recently launched a new range of amplifiers and CD players, but has not yet got involved in multichannel electronics. However, accepting the realities of the marketplace, the company has adapted and developed its speaker designs to provide a 5-channel solution which totals £915 – a relatively modest price since all five are attractively clothed in good quality real wood veneer. The system follows the established stereotype of a pair of floorstanders for main left/right and bass duties, plus three much smaller speakers for centre and surround. There's probably a choice of veneers, since our left and right were a different shade from our centre and surrounds: presumably the customer will get a proper flush.

Reviewed and Recommended in *HFC* 193, the main stereo speaker here is the £475/pr Jura, a chunky little floorstander, port-loaded at the rear, with nicely radiused front edges to soften the lines, and a plinth to accommodate the floor spikes securely. It has a rather larger main drive unit than the competition, with an 8-inch cast frame and 135mm diameter paper cone, and is therefore likely to provide sufficient bass for music replay without further assistance from Rega's ultra-compact Vulcan subwoofer. A 25mm soft dome tweeter tackles the top end.

A pair of miniature two-way Aras, the £255/pr successor to the Kyte, handle the surround channels, while the centre is down to the £185 Senta, which is effectively a magnetically shielded and slightly slimmer Ara, with a nice little badge set into the top surface. All three share the same two-way driver line-up, with a 19mm soft dome tweeter and a small cast-frame/paper-cone main driver, with a diaphragm diameter of just 90mm. One might wonder whether the Senta in particular can handle the highish levels sometimes needed for the centre speaker, but since a pair of Aras were used – full range and with no bass protection – in order to test the subwoofers, there seems no cause for concern.

SOUND QUALITY

Rega speakers both measure and sound 'brighter' than average, which can be a little disconcerting at first listen. But the top end is also unusually 'clean', so provided they're used with good quality sources and amplification, the result is pleasantly open and transparent. That said, the Juras are rather recessed through the presence region, a little too much so for my personal taste, and this makes voices sound a bit 'shut in' and hollow. But this speaker's strength is its bottom end, which has great agility and drive, imparting a proper sense of purposefulness to music, and a general freedom from time-smear. It might have a bit more power and tonal richness perhaps, but the sound has a wide dynamic range and a measure of tension unusual at this sort of price.

The Senta doesn't sound as 'shut in' as the Juras, which is nice with voice reproduction, but the top end brightness is

very similar, so there's no obvious discontinuity across the front soundstage. By the same token, the surrounds also integrate quite unobtrusively, creating an appealingly coherent and convincing surround sound experience with a decent measure of acoustic tension.

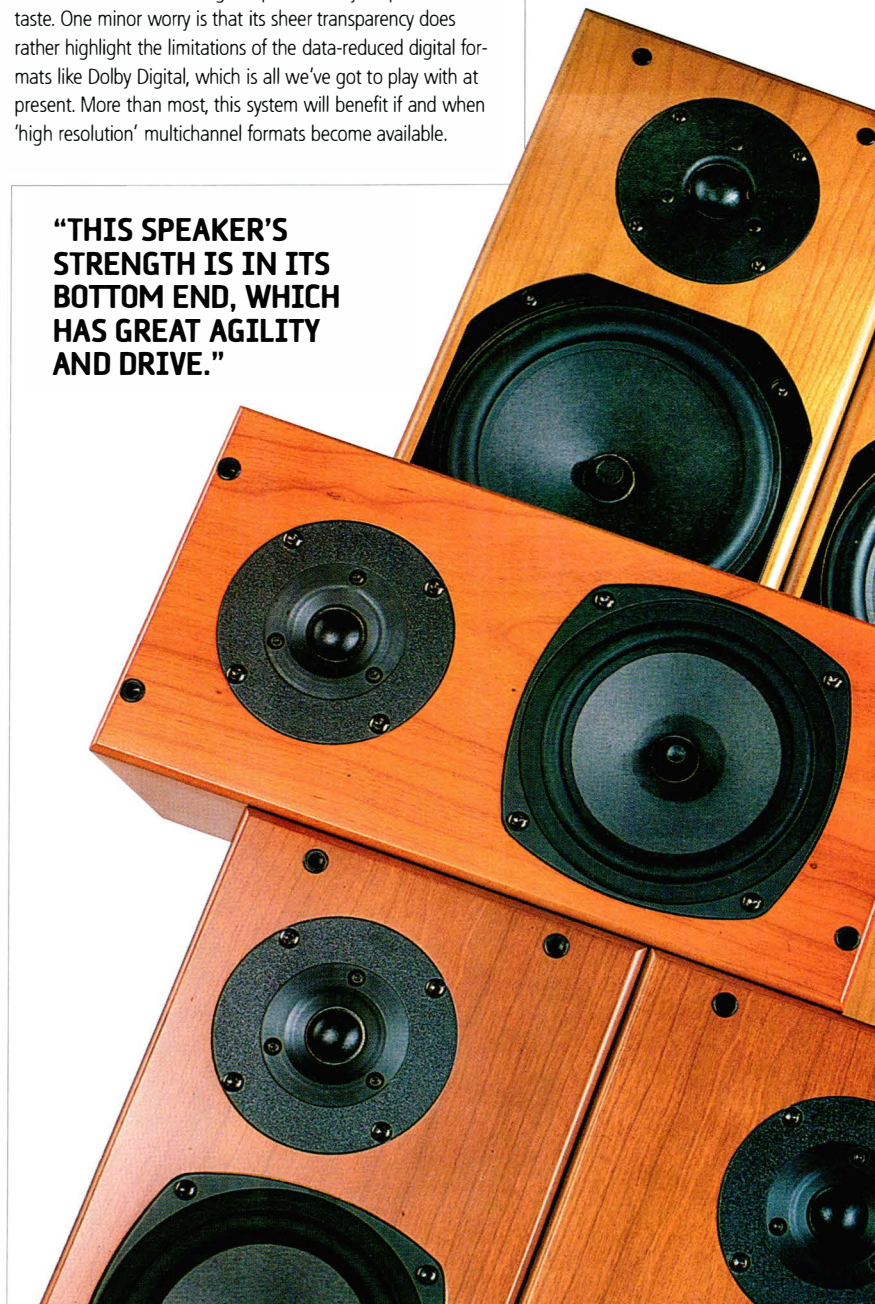
CONCLUSION

It's hard to argue with this fine combination of sound and presentation quality at a relatively affordable price, though do check first whether the bright top end suits your particular taste. One minor worry is that its sheer transparency does rather highlight the limitations of the data-reduced digital formats like Dolby Digital, which is all we've got to play with at present. More than most, this system will benefit if and when 'high resolution' multichannel formats become available.



A decent price and a decent sound – the Rega package could make many friends.

“THIS SPEAKER'S STRENGTH IS IN ITS BOTTOM END, WHICH HAS GREAT AGILITY AND DRIVE.”



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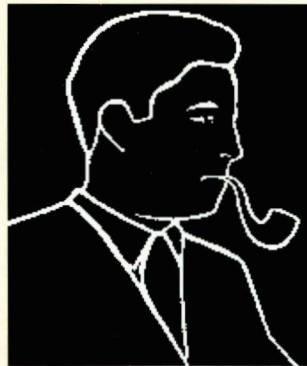


WHAT HI-FI? August 2000

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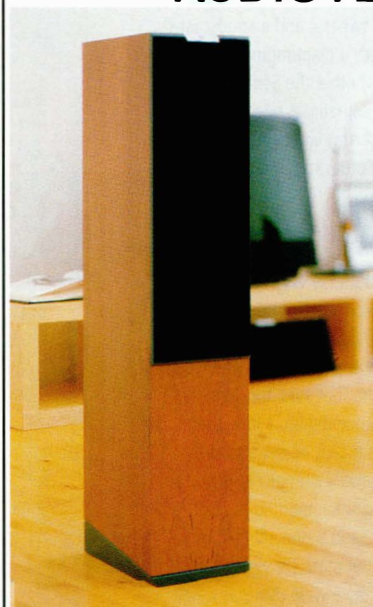
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SOUND ★★★★★ **VALUE** ★★★★★ **£499.90**

HI-FI CHOICE BESTBUY

Tannoy's mX-series of budget loudspeakers are actually built in Taiwan, which probably helps keeps costs down – and the mXAV4 is very much the beer budget contender in this group test.

Tannoy's mX2 stand-mount and mX3 floorstander have already rated Best Buys in our regular stereo speaker group tests, while this surround package brings together three of the other mXs. Take a pair of mX4s (£350), a pair of mX1s (£120) and one mXC (£100) and you have the complete mXAV4 package – yours, at a welcome discount, for just under £500.

All the mXs come in a light coloured vinyl woodprint with an attractive light grey grille cloth. Black-on-black is an option, and might be worth specifying for the centre-front channel, as it will probably fit in better with your TV set. The vinyl surface looks good from a distance, but doesn't feel quite so convincing close up.

Pride of place must go to the recently introduced mX4, a two-and-a-half-way floorstander that's a logical development from the mX3, using a slightly taller enclosure on a similar footprint, plus an extra main driver operating over just the bass frequencies. With the port tuned to a low 35Hz, the result is an unusually well-extended bottom end from such an inexpensive speaker – the measured in-room balance is very impressive indeed. There's the option to mass-load a bottom chamber, and that is worth pursuing, as the box seems quite tall for its limited footprint, and not particularly stable on its little 6mm spikes. Indeed, I feel Tannoy ought to make an optional plinth available.

The mXC shows plenty of thought. Two little main drivers with 85mm cones allow it to be significantly slimmer than average, while a slab of metal along the bottom surface adds useful mass loading and extra magnetic shielding. The surround speakers are perhaps a bit of an afterthought, but the little two-way mX1s are the simplest, smallest of the mXs, and also inevitably the least expensive, helping keep the overall cost of the package down.

SOUND QUALITY

In stereo mode, the mX4s are very capable in most respects, though a little limp and feeble dynamically. The bottom end is smooth and well extended, allowing the speaker to be kept well clear of walls while giving just the right weight to full bandwidth recordings. (If you have to put them close to a wall, Tannoy has helpfully provided foam plugs to damp the port output.) Weight it does have, but not a lot of authority or grip. The bottom end plods along a bit, and the midband could be more expressive and dynamic. The overall sound balance is very close to neutral, although it is just a little 'thin' in tonality.

Moving to full surround sound maintains the same overall character. The mXC provides an exceptionally close voice match for mX4s, so that transitions across the front stage are

beautifully seamless. The rear/surround speakers did their job capably enough too, for the most remaining commendably discreet, though the occasional 'spit' suggests they are better not pointing directly towards the listening zone.

CONCLUSION

A supremely competent package at an exceptionally attractive price, it's hard to argue with the mXAV4 on value for money grounds, though at the same time it should be emphasised that this is a budget speaker system, with essentially budget aspirations. It's impressively smooth, well balanced and integrated – unusually so across the front soundstage – but also lacks the dynamic vigour and excitement that you'll find at higher prices, but this system gets so much right a Best Buy is mandatory.

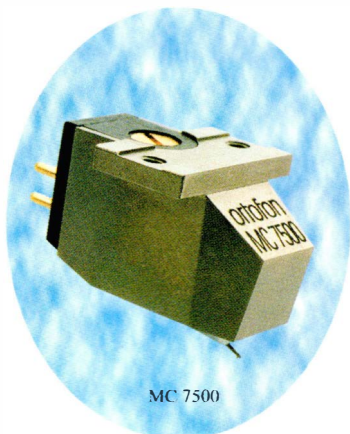


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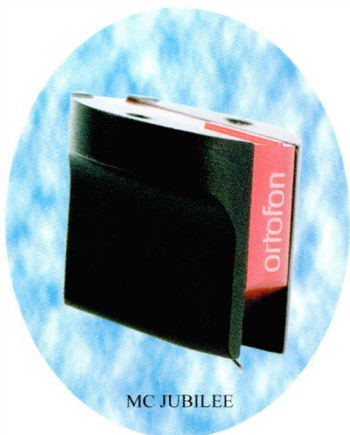
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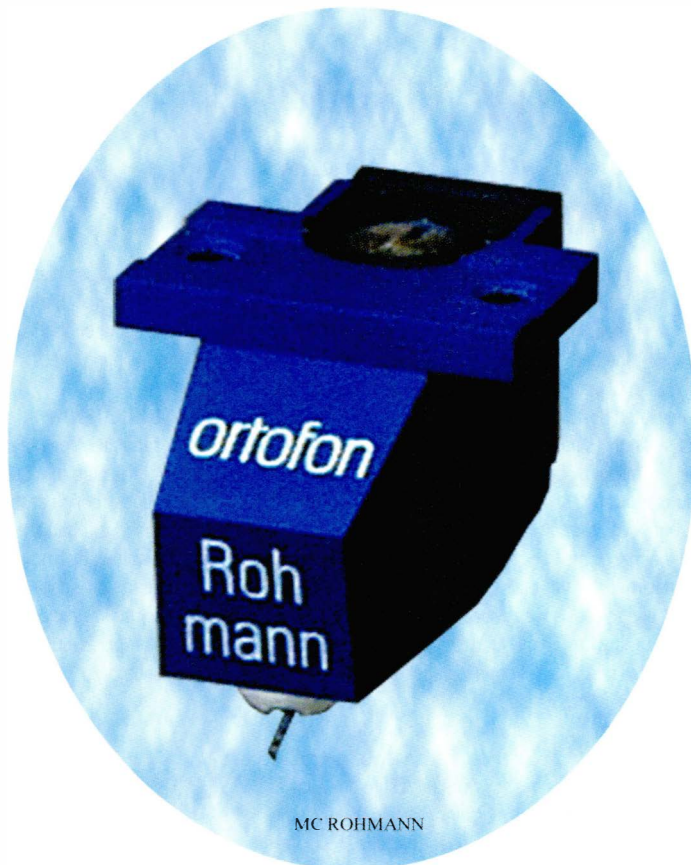
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CONCLUSIONS

PAUL MESSENGER SUMS UP THIS LATEST CROP OF SURROUND SPEAKER PACKAGES

One problem facing anyone attempting to review surround sound speaker systems for music reproduction is that the inherent quality of currently available recordings isn't that great. Nearly all of it is hampered in terms of top end transparency by limitations of the Dolby Digital format. And I'm looking forward to having some genuine 'high band' multichannel material by the time we next test surround packages.

Our ten systems cover a broad price spread from £499.90 (Tannoy) up to £2,500 (Jamo), and an analysis of the various prices is interesting. The marketplace for speakers supplied in stereo pairs is so well established and competitive, the extra bits needed for five-channel surround often seem surprisingly expensive.

That's especially true for the centre-front channel, which often seems to carry a hefty price loading, but one which is quite well disguised because these models are priced singly rather than as pairs.

There are some excuses, notably that sales and production volumes are lower, and that quality magnetic shielding is mandatory, two factors which will both put up unit costs. But I still find it difficult to accept that a number of these centre channel speakers (e.g. Mirage, Monitor Audio, Mission) cost as much as or more than their partnering floorstanders.



One can make something of the same price case for the surround speakers, where manufacturers can use the clever

shapes and wall brackets they've developed as an excuse for price premiums. The more cost-effective approach would seem to be to use an inexpensive regular pair of stand-mounts – but if you factor in the cost of stands, these special wall-mounts look a better prospect. I was a little sorry that only Mordaunt-Short supplied di-pole type surrounds, as I found this approach very effective.

There was some indication from the tests that using the same or similar speakers all round – and especially drive units – confers some advantage. Combining this with designs that sit happily in the domestic environment is a challenge that few have successfully met.

“THE EXTRA BITS NEEDED FOR FIVE-CHANNEL SURROUND OFTEN SEEM SURPRISINGLY EXPENSIVE.”

SURROUND SOUND SPEAKERS AT A GLANCE

					
HI-FI CHOICE BEST BUY					
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MODEL NUMBER	CONCERT D8 PACKAGE	XTI	Q-SERIES	OX9	CINEMA 8
PRICE	£2,500.00	£1,100.00	£849.99	£1,999.70	£1,399.99
SOUND VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CONCLUSION	Inconsistent performance from this costly package. Impressive fronts unmatched by center and surround.	Looks good, has good authority, and a restrained top end that's well suited to current surround sound software.	Affordable and sonically fun to boot yet a shade bright in the centre and surround. Should appeal to film fans	Unconventional yet invigorating. Great fun although poor neutrality, worthy of an audition as some will love it.	Style conscious, elegant package with a pleasant balance. A bit pricey on sound per pound though.
GUARANTEE	7 YEARS	2 YEARS	5 YEARS	5 YEARS	2 YEARS
					
HI-FI CHOICE RECOMMENDED					
MAKE	MONITOR AUDIO	MORDAUNT-SHORT	PMC	REGA	TANNOY
MODEL NUMBER	SILVER	DECLARATION 500	FB1/TB2	JURA/ARA/SENTA	MXAV4
PRICE	£1,000.00	£1,600.00	£2,200.00	£915.00	£499.90
SOUND VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CONCLUSION	Good looking package enjoying great build quality, but not quite up to scratch using Dolby Digital 5.1 material.	A lot of engineering for the money, which sounds good provided you use line level (.1) subwoofer connection.	Sounds great in stereo and pretty good in surround sound, but is fairly bulky, and quite expensive too.	Might be a bit bright for some, but the lively and coherent sound and pretty veneerwork is tempting.	A supremely competent package, but it lacks the vigour and excitement that you'll find at higher prices.
GUARANTEE	3 YEARS	1 YEAR	5 YEARS	LIFETIME	2 YEARS

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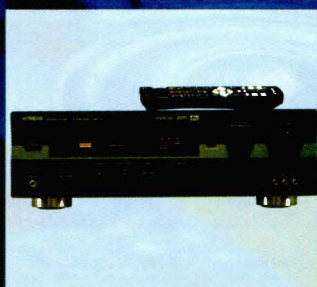
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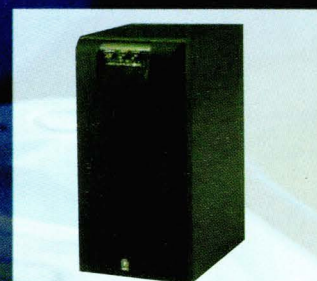
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QUIRKY QUALITY

T+A'S EXCELLENT NEW HIGH-END DVD PLAYER ALSO DOUBLES UP AS A DECENT CD PLAYER – JUST DON'T EXPECT TO FIND IT USER-FRIENDLY



a

REVIEW RICHARD STEVENSON

ll DVD players will play CDs – just not fantastically, by and large. So perhaps it's not surprising that specialist hi-fi manufacturers are turning to high-end, dual role players designed for the discerning enthusiast of both formats.

German manufacturer T+A's DVD 1210R is just such a beast and certainly well outside the mass market DVD player rabble. The sumptuous, silky-smooth silver finish is gorgeous, the build quality could probably withstand a small nuclear strike and there are some very nice finishing touches. For example the case overhangs the rear panel by about 4cm to conceal some of the spaghetti if the player is on the top of your equipment rack and a separate remote control receiver with a three metre extension cable is supplied as standard. This is supremely useful if, like our test room, the player is actually behind the seating position.

The back panel offers a typical array of DVD player connections including composite and S-video outputs, a single Scart socket and both multi-channel and dedicated PCM digital outputs. This allows the player to be simultaneously connected to an AV amp for surround sound and a CD recorder or digital to analogue converter (DAC) to upgrade its CD performance. Beneath the case lies quite a complex combination of

technologies. The DACs responsible for turning CDs into music are from the company's 1210 CD player and offer no less than five selectable digital filters to subtly change the sound by varying the degree of pre and post echo, which in turn affects balance and timing. In addition to the standard "flat" setting, there are two settings that lift upper treble to varying degrees, one that rolls off the treble gently and one that adds all sorts of minor peaks and troughs through the upper end of the spectrum.

Strangely, the DVD 1210R packs in a full DVD-Audio specification chipset but does not claim to be a true DVD-A machine. This is confirmed by the specification of the analogue audio section, which curtails output pretty smartly over 20kHz – not allowing for the full bandwidth of the DVD-Audio format. Very odd.

Setting up and operating the DVD 1210R is similarly quirky, always reminding you that you are spending the sort of money that gets you into enthusiast territory. The on-screen display is a full-colour graphics-based device but somewhat distractingly overlaid on a picture of an ancient baroque hall. The buttons might look the part but they do not allow a wide gamut of activity without the aid of the instruction manual and Olympic standard finger dexterity. The remote control is a sexy aluminium-topped device with one of the most bizarre suites of keys and legends we have seen for a while. It manages to offer such functional delights as A/B speaker switching for a matching T+A preamp whilst failing to have a button marked 'Play', that task is

"METALLICA'S CUNNING STUNTS RIPS FROM THE SPEAKERS WITH GREAT ENERGY AND HEAD-BANGING ENTHUSIASM"



covered by the all encompassing 'OK' button. There is also a rather frustrating delay of about a second between pushing a button on the remote or the player and getting a response.

SOUND QUALITY

Still, get past these quirks and the rewards can be great. With Dolby Digital soundtracks, as found on the majority of UK film and music DVDs, it has all the drive and passion any action movie could need. While this is not unique in itself, where the T+A player scores is in managing an admirable clarity and decorum when the pace drops for dramas, comedy or even art house. The balance from deep bass to upper treble is wonderfully neutral, making dialogue reproduction faithful to the actor's dulcet tones.

The 1210R has a similar all-seasons attitude to multichannel music, be it Dolby Digital or dts surround sound. Metallica's *Cunning Stunts* fairly rips from the speakers with great energy and

head-banging enthusiasm while Chopin's *Piano Concerto No. 2* loses none of its unmistakable blend of melancholy and passion. Picture quality is also first rate via the S-video output: sharp, vividly colourful images with the minimum of digital video artefacts. The composite and Scart video outputs are not so good however, and both add a significant fug to the picture.

Where things get a little more confused is with CD. Overall the player has a well-rounded presentation, combining a neutral balance with strong dynamics and raw grunt. However, it is perhaps not as open and detailed as the best dedicated CD players at this price point and this malaise coats the overall presentation with a light veil. Also the effect of the various filter options is quite marked and can change the entire ambience of the music: anywhere from larger-than-life to head-in-the-sand. Having tried them all blind several times I found the most favourable to be – you guessed it – flat.

CONCLUSION

Operational shenanigans aside, the DVD1210R is an excellent DVD player that can spin a fairly mean CD when asked. It is not a completely all-encompassing nirvana for both formats but, at £1,700, it certainly gets close enough to warrant a serious audition.

£1,699.00 ☎ 020 8863 9117



The T+A DVD 1210R's array of buttons. Comprehensive and only a little bit confusing – just don't expect to find a 'Play' button on the remote!





ust because budget DVD players are fueling the home cinema revolution, this does not mean that audio and videophiles are left with nothing to aspire to. It's this burning desire for the ultimate combination of picture and sound quality that Sony is hoping to quench with its £1,200 DVP-S9000ES. First and foremost, this is a very sophisticated DVD player with the option of a

Progressive Scan video output – a 'must have' for enthusiasts who collect American DVDs, but note that this machine doesn't play Region 1

discs in standard trim. The digital output offers MPEG, Dolby Digital and dts-encoded datastreams while linear PCM from 96kHz/24-bit DVD music discs is delivered *without* downsampling (provided there's no copy prohibit flag).

But there's more. Not only is the DVP-S9000ES arguably one of the most advanced DVD players available, but it's also the first to incorporate SACD playback. On the other hand, it does not recognize CD-R or CD-RW discs despite playing conventional silver CDs with aplomb, while DVD-Audio discs might as well be thin slices of salami as far as the 9000ES is concerned. At this

"NOT ONLY IS THE DVD-S9000ES ONE OF THE MOST ADVANCED DVD PLAYERS, IT'S ALSO THE FIRST TO INCORPORATE SACD PLAYBACK."



stage in the marketing war between Sony and Panasonic, SACD and DVD-A remain technologically segregated. For the other side of the coin, turn to the Technics' DVD-A10 review on page 20.

Sony's player is exceptionally stylish. Basic track access buttons are embedded into a thick polycarbonate display lens that runs the width of its heavy champagne-gold fascia, the lightest touch activating a new, precision CD/DVD/SACD mechanism. The drawer is a mere sliver of alloy that glides into view, seemingly little thicker than the disc itself. Track, group and chapter access is swifter than with the vast majority of

DVD players just as the remote handset, with its jog/shuttle dial, gives quick access to a set of comprehensive on-screen menus for video and audio set-up.

I was interested to learn that the 9000's SACD stage was developed by the DVD group, rather than Sony's digital audio group. This may explain some of the differences in performance between the DVP-S9000ES and earlier SACD players like the SCD-1 (see *HFC* 193 and 194). The 9000 has a more extended frequency response, reaching 80kHz, which is well into bat territory. The signal to noise is also far better than that

REVIEW PAUL MILLER

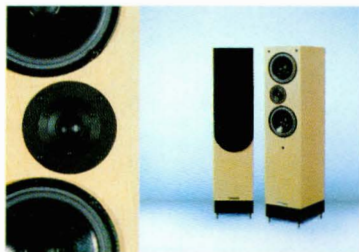


A CHERRY ON TOP

AS IF STUNNING DVD-V PERFORMANCE WASN'T ENOUGH, SONY HAS ADDED SACD COMPATIBILITY TO ITS NEW DVP-S9000ES

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Hi-Fi Choice Editor's Choice

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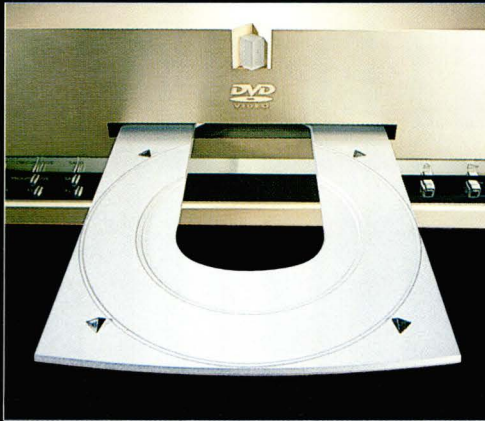
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Unison Research Simply 4 valve line integrated amplifier	£790	£1600
Cary 300B SE1 triode line integrated amplifier	£1700	£4000
Audio Note ANSP silver speaker cable 2x 3m sets	£900	£2100
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◀ achieved by the DVD-A players we've covered recently. Digital jitter is very low indeed (160psec) with the video and digital circuits defeated (Audio Direct mode), though there's no significant increase in noise, jitter or distortion if you leave all video and digital outputs switched on. The DVP-S9000ES is just too well engineered for the video equivalent of 'tone defeat' to make much difference!

SOUND QUALITY

Almost regardless of format, the DVP-S9000ES has a slightly dry, almost etched quality which is not dissimilar to the sound of Sony's CD players some five years ago. Qualities that focus on instrumental texture rather than dynamic impact or, as one listener put it, "more Bayeaux Tapestry than Kodak Colour Gold". Clearly, this is a player that lulls with subtle, intricate and unforced detail. Low bass notes, even those recorded at low volume, still have a feeling of weight and expression, contributing to the ambience of the music as a whole. A simple (CD) track like Cassandra Wilson's *Tell You'll Wait...* has tremendous presence, the bowed and plucked bass grumbles along with surprising purpose, deep but not excessive, clean but not sterile.

Vocals are projected in a similarly clean and fresh fashion, though there's perhaps not sufficient 'localisation' to give us a real 3D image. The miking can sound slightly vague, though it's the 9000ES rather than the recording engineers that are playing fast and loose here! This is more obvious because the top-end has a slight hardness, a digital smear that robs shimmering percussion of its natural air and space. The bass and mid-range are nothing short of stunning, if only the treble had the same subtlety and atmosphere.

Sting's vocal performance through *Seven Days* was as lucid as we'd heard, tonally incisive if not so positionally secure. Importantly, the busy

sections were handled with unusual restraint. Instead of bowling into the room with abandon, the crash of percussion, guitar, drums and searing highs of his voice remained as composed and detailed as the simplest sections of the CD.

And yet our experience of (96kHz/24-bit - DAD) DVD video music was to prove slightly disappointing. The bass was a little flatter than expected, while mid and treble detail was composed but too dry and diminished in scale. Then again, in the long term, this format will be superseded by DVD-A. In SACD mode, the 9000 rather failed to thrill us with any substantive improvement in quality over CD where, frankly, the benefits were judged to be marginal.

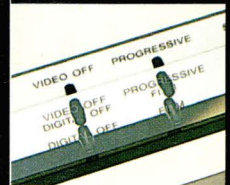
One of best SACDs available - Joe Beard's *For Real* - sounded just slightly crisper through the treble, the percussion enjoying a suggestion of bite and air that was lacking with the CD version. The overall sense of space and ambience, however, was only slightly better, and this is usually the strongest suit of SACD. The wonderful sense of depth and expression heard with SACD at its best is merely hinted at here, for though the music is very composed and orderly neither is it obviously 'special' or stirring.

Nevertheless, just as our description of the Technics player might have been overly critical, so too our critique of the Sony is necessarily nit-picking. This, our listener's concluded, remains "a genuinely impressive sounding player".

CONCLUSION

If Sony's DVD/SACD and Technics' DVD-A/V players are any guide, then the Far Eastern art of audio is coalescing towards a common goal, almost as if by agreement. These are not examples of middle-of-road hardware but are sophisticated players; the audio equivalent of a Lexus 300 perhaps, and a refreshing alternative to the European 'sound' if you subscribe to this school of thinking. What we are offered is very composed, well structured but not overtly expansive or expressive. There's plenty of texture and detail, giving a well-informed insight to the music without ever really getting its hands dirty. It's rather like comparing the Tokyo subway with the London Underground or a plate of sashimi with roast beef and Yorkshire pudding.

And there is clearly more to come, because the DVP-S9000ES neither includes an on-board Dolby Digital/dts decoder nor will it cater for multi-channel SACD when it finally arrives. And neither, of course, will it recognise DVD-A software. All of which makes the 9000ES something of a niche product - a stunning DVD movie source with SACD audio as a value-added feature.



The DVP-S9000ES's controls are simple and stylish. The main track access controls are built into the fascia of the player, while the remote gives you easy access to the set-up menu and other options. The disc tray (above right) is wafer-thin, and glides like a dream.

"THE BASS AND MIDRANGE ARE NOTHING SHORT OF STUNNING, IF ONLY THE TREBLE HAD THE SAME SUBTLETY AND ATMOSPHERE"



RUARK

SUBWOOFERS

PAUL MESSENGER GETS DOWN, DEEPER AND DOWN, AS HE CHECKS OUT A SELECTION OF SUBWOOFERS TO BOOST YOUR BASS.

Subwoofer. The word says it all. A subwoofer's task ought to be supplying bass below the bass that's already being pumped out by the regular speaker system's woofers. This apparently simple task is one which surprisingly few

seem capable of, if our previous subwoofer group tests are anything to go by. For music at least, the output of a subwoofer needs to be, above all, supremely discreet. Yet discretion has never been an easy sell, so there is always the temptation to make it a little more attention grabbing.

Granted, movie soundtracks have 'special effects', which have little or no basis in reality, and these might sound more impressive if played excessively loud. But in strict high fidelity terms at least, music has a 'correct' level of relative bass output, determined in the recording studio. For music reproduction, there seems very little point in using a subwoofer that has vastly more headroom than the system's normal amp/speaker combination.

Large three-way loudspeakers probably won't need a subwoofer. Where they're particularly useful is in underpinning smaller two-way speakers, extending the system's bass response and also allowing the main loudspeakers to be moved well clear of walls, reducing midband coloration and improving stereo imaging.

Although the temptation is usually just to stick it behind the sofa, it's well worth spending the time experimenting with subwoofer placement. Some advocate the corner (to take maximum advantage of room-mode gain), while others prefer the sub closer than the other speakers. All rooms are different, so 'golden rules' don't really apply. It's also worth considering using two or more smaller subwoofers, an approach which will drive the room more evenly than using just a single sub.

Few subs offer much in the way of features, which seems to me something of a lost opportunity. It's quite difficult to precisely adjust the volume of a sub, because the effect of room modes mean it may well sound louder or softer when you get back to your chair. Remote volume control could be quite useful, as would an ability to switch between 'movie' and 'hi-fi' equalisation modes. The active drive of a powered subwoofer could also permit more elaborate equalisation, which could be used to smooth out the overall in-room bass balance.

THE PLAYERS

JAMO D8	£950.00
M&K VX100	£795.00
PARADIGM PDR-10	£149.99
POLK PSW450	£399.99
REL STRATA III	£700.00
RUARK LOG-RHYTHM	£799.95

OTHER EQUIPMENT USED

Naim CDSII CD player
 Naim NAC52/NAP500 amplifiers
 Naim interconnect & speaker cables
 Rega Aras speakers
 Rehdeko RK175 speakers

MUSIC USED IN REVIEWS

Chemical Brothers -
Brothers Gonna Work It Out
 Basement Jaxx - *Remedy*
 Mari Boine - *Eallin*



JAMO D8SUB

CONTACT: 01788 556777 www.jamo.co.uk GUARANTEE: 2 YEARS

SOUND VALUE £950.00

Jamo has always been known for its excellent industrial design, and this sub is no exception. It's a handsome, if bulky, beast, with a 'glass' top surface and real wood veneer forming the gently curving vertical corners, while a 'Home Cinema' legend on the front makes clear where its priorities lie. The unit sits on four plastic feet, threaded to accommodate floor spikes.

Total weight is around 24kg, and the unit is fitted with a 12-inch steel-frame bass driver, and a 12-inch ABR (a passive diaphragm which effectively functions as a port). Two pairs of phono sockets provide line in- and outputs (including LFE-in) but there's no high (speaker) level input. One knob varies the roll-off frequency, nominally between 40Hz and 125Hz, while another offers variable phase (0-180 degrees). Lacking a manual, it took a while to find the gain control – a little knurled wheel cunningly disguised as part of the badgework on the front. Measurements show this subwoofer can deliver massive output from 40Hz upwards, but much, much less through the really low stuff (20-40Hz).

SOUND QUALITY

The D8SUB integrated quite smoothly and seamlessly with our little Rega Aras, and showed oodles of headroom and even a modicum of dynamic grip and tension. However, that failure to make any real attempt at reproducing the bottom octave clearly robs the sound of ultimate weight and scale, which is disappointing in view of this subwoofer's high price.

CONCLUSION

This is a good-looking subwoofer, no question, but it's expensive in a group context. Moreover, truly deep bass is not on the agenda, the D8SUB providing instead massive quantities of midbass thump. Home cinema is what it says on the front, and that's pretty much what you get.



M&K VX100

CONTACT: 020 8603 0480 www.mksound.com GUARANTEE: 5 YEARS

SOUND VALUE £795.00

The third M&K to come in for *HFC* scrutiny over the years, each has been most notable for its diminutive dimensions. This VX100's pricetag therefore seems rather high considering the modest weight (13kg), compact size and utilitarian finish. The key to the size lies in using a smallish, downward-facing 8-inch driver with 150mm paper cone, loaded by a sealed box that's as tough as it is tiny. Finish is textured vinyl, with an exposed heatsink on the rear but nicely radiused edges all round, and decent accommodation for floor spikes.

Inputs are limited to two line-level phono sockets, but otherwise this subwoofer is well equipped, with a phase-reversal switch plus variable gain and roll-off frequency labelled 50-120Hz (the latter defeatable, for operating in LFE mode). Measured alone, the VX100's low bass is rather lacking, and a rather better overall balance with the Aras could be achieved by deliberately selecting phase cancellation at the sub-to-sat transition.

SOUND QUALITY

Sadly this didn't prove to be the case subjectively. Although the VX100/Ara combo sounded more even when the phase switch was used to cancel the midbass excess, the music lost some of its coherence and drive. The breathtakingly propulsive percussion on Mari Boine's *Modjas Katrin* simply carried better direction and momentum, even though it lacked the ultimate weight of the 'out of phase' option. One is therefore stranded between the weight of one and the coherence of the other. Aside from this, the VX100 sounds impressively clean and quick, with more than enough headroom to keep up with any normal loudspeakers.

CONCLUSION

Cutely compact and classy too, the VX100 is a very entertaining subwoofer, but it sadly lacks the ultimate extension to justify its high price.



PARADIGM PDR-10

CONTACT: 020 7940 2240 www.richersounds.co.uk **GUARANTEE:** 1 YEAR

SOUND ★★★★★ **VALUE** ★★★★★ **£149.99**

A well-known transatlantic subwoofer specialist imported by the budget-oriented Richer Sounds chain, Paradigm's PDR-10 is the least expensive in our test group by a considerable margin. The price (reduced from £250, according to the ads) has got to be a good deal for a powered subwoofer, though there are obvious repercussions in build quality and features.

Made in Canada, it's a decent size port-loaded box, though also rather lightweight at just 13kg, and finished in regulation black vinyl. The grille seems to be a permanent fixture, making inspection of the drive unit difficult, though this appears to be a 10-incher. Input connection is either via a single line-level phono input, or a set of high (speaker) level spring-clip sockets. There are variable gain and roll-off frequency rotaries (the latter labelled 50-150Hz) but no phase reversal switch, an unfortunate omission which will make it that much harder to achieve good sub/satellite integration. Pathetic plastic feet are fitted, one of which had suffered some damage prior to receipt. The PDR-10 does have some 'mid-bass boom-box' tendencies, but in other respects the filtering is pretty well chosen.

SOUND QUALITY

The PDR-10 might not have much in the way of grip, drive and authority, but take a little care in getting the set-up right and it's possible to get some useful bass-fill which is, above all, commendably discreet. It won't add a huge amount of musical information, and doesn't really do much to sort out the more complex bass figures on the Basement Jaxx CD, but it doesn't get in the way and muddle things up much either.

CONCLUSION

Hardly the last word in subwoofery, the PDR-10 does at least try hard, and achieves some success. In view of its modest selling price, Recommendation seems appropriate.

HI-FI CHOICE RECOMMENDED



POLK PSW450

CONTACT: 020 8863 9117 www.polkaudio.com **GUARANTEE:** 5 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£399.99**

I guess the industrial designer must have been on holiday when this subwoofer was put together, I've seldom seen a less attractive example of the breed. It's a large vinyl-clad cuboid with sharp edges and corners all round, and a particularly vicious line in heatsinking sticking out from the electronics panel. To be fair, you do get a lot of subwoofer for your money here, and the 22kg weight suggests there's been no skimping on the bits that matter.

The driver is a 12-incher with 240mm plastic cone and steel frame, loaded by twin ports. There are three line inputs (stereo and LFE), plus two sets of high level speaker sockets. One is for the input signals, while the other provides an 80Hz high pass filtered feed, which could be useful in protecting small satellite speakers from large and potentially damaging bass signals when operating at high level. Rotary knobs vary the gain and the roll-off frequency, the latter labelled 60-125Hz, and a switch provides phase reversal. Silly plastic studs, about the size of pound coins, provide the only floor coupling.

SOUND QUALITY

I struggled for ages to try and find the right gain and filter settings for the PSW450, but all the options left me with too much upper bass and not enough low bass, and music that was consequently all thump and little authority. The bass does sound clean, if not particularly 'quick', with decent headroom in reserve, but the sound is also spectrally skewed, emphasising harmonics at the expense of fundamentals. For a bulky subwoofer, it's a surprisingly lightweight affair.

CONCLUSION

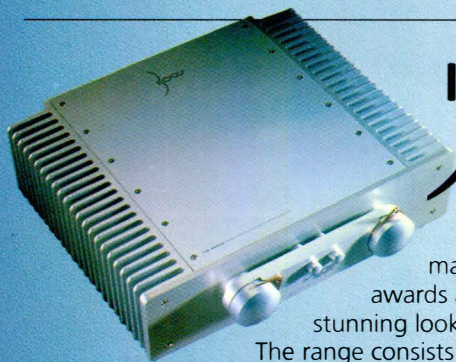
A lot of sub for the money, but it needs to be hidden behind the sofa. The PSW450 is oriented more towards loud movie replay than the deeper subtleties that work best with music.

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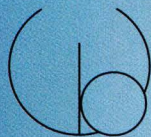


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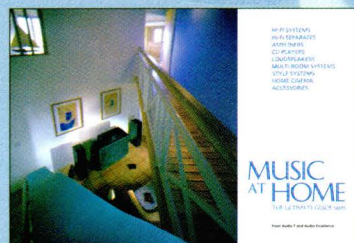
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REL STRATA III

CONTACT: 01656 768777 www.rel.net **GUARANTEE:** 3 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£700.00**

A *i-Fi Choice* first tested a REL Strata way back in 1994 when this was the company's new 'entry level' model, priced at £499 and finished in utilitarian black. Today's MkIII is now a sealed box rather than a ported system, but the price has only crept up to £600 in black or £700 in the lovely wood veneer of our samples. It's a handsome box, with nicely softened edges all round. It's also quite large, weighs a solid 23kg, and uses a 10-inch, cast frame driver with 190mm paper cone firing downwards. Substantial floor spikes are also provided

The Strata III is unusually flexible, with two line inputs plus two Neutrik sockets, one for high (speaker) level input, the other for balanced connection. There are variable gain controls on both high and low inputs, and the roll-off filtering uses REL's precisely calibrated system based on two rotary switches – one coarse, the other fine – which are used in combination together with a look-up table. Phase reversal is via a mode switch which also selects LFE/line inputs. One of only two subs in the test which delivered genuinely deep bass, the filtering looks well suited to hi-fi integration, though in fact the upper bass was a little strong in combination with the Aras.

SOUND QUALITY

This is what subwoofery ought to be about. The Strata III simply augments what the main speakers are doing, enhancing the scale and weight of the whole experience, especially in imaging terms. So well does this subwoofer integrate, you only become aware of its contribution if you turn it off. In the final analysis, a little more bottom octave might have been preferable, but in terms of agility and coherence, the Strata III is a class act.

CONCLUSION

A great example of a hi-fi subwoofer, this good looking if bulky subwoofer does the business with impressive flexibility and sonic self-effacement.

HI-FI CHOICE RECOMMENDED



RUARK LOG-RHYTHM

CONTACT: 01702 601410 www.ruark.net **GUARANTEE:** 5 YEARS

SOUND ★★★★★ **VALUE** ★★★★★ **£799.95**

I he Log-Rhythm is a quite large but rather good looking subwoofer, finished in charcoal grey as standard, but with the option of veneered 'side-cheek' panels. It's also exceptionally solidly built, turning the scales to around 35kg. Each of the vertical corners is a metal tube, adding a distinctive touch and providing firm foundation for floor spikes. Our samples arrived with attractive and hefty looking cones.

It uses a 12-inch steel frame driver, operating in sealed-box mode, and comes with a generous complement of facilities, with two pairs of phono sockets for line in and out, and a high (speaker) level input on a Neutrik socket. There's a variable gain control for each input, a variable upper roll-off frequency labelled 30-120Hz, and a phase reversal switch. Another switch chooses between hi-fi and home cinema equalisation, though it does this by doubling the roll-off frequency, which seems a tad simplistic. Happily, the filtering in hi-fi mode is flexible enough to provide useful underpinning right down to 20Hz, without excess mid-bass boom and thump. One word of caution: don't try to put this sub near your TV set, as it has a wicked magnetic field.

SOUND QUALITY

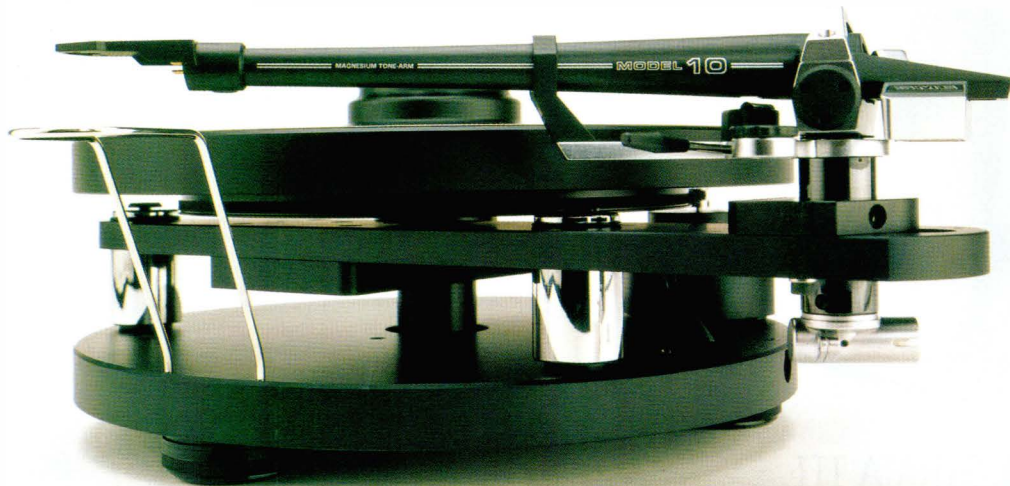
Sonically the Log-Rhythm did exactly what a subwoofer is supposed to do. It's beautifully discreet, plumbing bass depth with a fine combination of speed and agility, alongside massive weight and scale. It was easy to achieve coherent integration with the Aras, and the sub simply got on with the business of delivering real bass as and when required, cleanly and with plenty of headroom, while keeping well out of the way elsewhere.

CONCLUSION

A fine hi-fi subwoofer, the Log-Rhythm not only adds weight and scale with commendable discretion, but also makes a positive contribution to the whole musical exposition.

HI-FI CHOICE RECOMMENDED

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CONCLUSIONS

FOUNDATIONS TREMBLE AS PAUL MESSENGER DRAWS OUR TEST TO A CLOSE.

From a hi-fi perspective, this group of subwoofers is mixed. Half have their priorities so firmly stuck up their home cinema fundaments, their relevance to music is limited.

Which is a shame, as there's no engineering reason why the equalisation and filtering which is already fitted cannot be adapted to give decent musical results.

It's worth pointing out that the three sealed-box designs (M&K, REL, Ruark) gave superior results to the reflex-loaded models from Jamo, Polk and Paradigm – indeed, both Polk and Paradigm benefited marginally from blocking their ports with large winter socks!

Port loading does make some sense if maximum loudness is the priority, as the port increases both efficiency and power handling. But it also reduces ultimate extension and phase linearity. Movie fans might be searching for the biggest bang per buck, but music sounds silly if the sub is working too hard. It therefore makes sense to go for linearity and extension rather than the loudness option.

In addition to my work for *HFC*, I'm regularly involved in reviewing subwoofers for *Car Stereo* magazine. The mass market for in-car subs might mainly involve boom boxes cruisin' around in Ford Fiestas, but the ICE (in-car entertainment) 'high-end' represents the state of the bass art, no question. ICE drive units are much more advanced, and the trend towards small sealed boxes has become increasingly well established as the way to go for the very best results with music signals.

There may be less need for compact enclosures in lounges, but I feel the domestic market could well learn a few tricks from the in-car scene. The best of today's domestic subs are commendably discreet and add good weight and scale, but they only go so far. The dictates of modern dance music in particular could perhaps be better served by smaller boxes, specifically bass-oriented drivers with massive motors and powerful amplification for greater grip and drive.

“THE DOMESTIC SUBWOOFER MARKET COULD WELL LEARN A FEW TRICKS FROM THE IN-CAR SCENE.”



SUBWOOFERS AT A GLANCE

						
			HI-FI CHOICE RECOMMENDED		HI-FI CHOICE RECOMMENDED	HI-FI CHOICE RECOMMENDED
MAKE MODEL NUMBER	JAMO D8SUB	M&K VX100	PARADIGM PDR-10	POLK PSW450	REL STRATA III	RUARK LOG-RHYTHM
PRICE	£950.00	£795.00	£149.99	£399.99	£700.00	£799.95
SOUND VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CONCLUSION	A great looker but also rather pricey, and intent on delivering lashings of midbass thump.	A compact subwoofer, able to produce clean, quick bass but short of ultimate extension.	Not a great subwoofer, but a surprisingly agile and competent one given its extremely low price.	A bulky sub with a clean if somewhat 'thumpy' delivery. Better with movies than with music.	Flexible, musical and easy to integrate - not the deepest bass around but generally a class act.	Neatly styled with an agile sound and plenty of grunt. A sub with real musical ability.
GUARANTEE	2 YEARS	5 YEARS	1 YEAR	5 YEARS	3 YEARS	5 YEARS

DVDisastrous

PAUL MILLER, PRIVATE DICK, HAS ALREADY BLOWN THE LID ON THE NOT-QUITE-RIGHT DVD-AUDIO DEMO DISCS. HERE, HIS INVESTIGATIONS LEAD HIM CLOSER TO THE HEART OF THE MATTER

“IT SEEMS INCREDIBLE THAT MUCH OF THE FIRST WAVE OF DVD-A SOFTWARE SOUNDS, IF NOT DREADFUL THEN AT LEAST SIGNIFICANTLY WORSE THAN CD”



This is how the story goes... In every corner of the globe, audiophiles have eagerly awaited the arrival of 192kHz/24-bit DVD-Audio with baited breath. DVD-A takes CD technology and expands both its bandwidth and resolution to new limits, dragging digital sound quality into a new era. But, bearing in mind the not insubstantial resources and engineering talent poured into DVD-A, it seems incredible that much of the first wave of software sounds, if not dreadful then at least significantly worse than CD. More incredible still, and not a little dismaying, is the fact that the companies involved do not appear to have noticed. What with all the fuss about Watermarking, the methods used to prevent DVDs from being copied, the industry's eye – and ear – has wandered off the ball.

I touched upon possible reasons behind the poor sound quality of these 'duff' DVD-A discs in an earlier *Oasis* (HFC 206), although the producers of this software have continued regardless. Subsequently, I have even seen DVD-A players reviewed – and written off – by the unwitting use of corrupted 192kHz material. This sad state of affairs was compounded by Technics' launch of its DVD-A10 player along with a freebie DVD-A disc. This disc was supplied to demonstrate the subjective advantage of 192kHz/24-bit audio over its CD equivalent using two, simultaneous recordings of Beethoven's *Piano Concerto No. 4*. Only that was not quite how things turned out.

SURELY SOME MISTAKE?

Intrigued at the possibility of comparing two notionally identical pieces of music – one recorded at CD's 44.1k/16-bit and one at DVD-A's 192k/24-bit rate on the *same* disc (tracks 5.1 and 5.3, respectively) – I arranged a group of people to take part in a blind listening session. The differences were not tricky to spot. The intro to the CD version was subtle and detailed, bringing a sense of easy cohesiveness to the orchestra as the instruments built in intensity. Our listeners were especially impressed by the pianist, whose deft left and right hands

moved sufficiently quickly to create the illusion of a duet, full of incisive, punchy detail that was invigorating to hear.

This was a purposeful performance and one that showed the DVD-A10 player (used for our auditioning) at its best, sounding in control and communicating solidly with its audience. The '192k' track, by contrast, was immediately recognisable by its heavy, hooded and oppressive atmosphere. "The piano just does not rise to the occasion," remarked one panellist; "It's as if he's put on woolly gloves," suggested another. And as the orchestra increased in weight, it rapidly bore in on itself, cluttering what was once a poised and polished performance. A loss of finesse, delicacy and any convincing sense of space that, quite frankly, should have been detected long before the DVD-A disc was made ready for mass reproduction, packaged and shipped to Technics' sites across the world.

Our verdict was unanimous: this '192k' DVD-A recording was inferior to plain vanilla CD – quite the reverse of Technics' intentions.

A COMEDY OF ERRORS

This is not the first DVD-A disc to come a cropper, but one of a list that includes Technics' 1999 *Westport Jazz Festival*, Pioneer's *Supersound Vol 1* and the *Retold* Hamamura Quintet disc from Audionet – a review reference in some quarters! So what's been going wrong and, more importantly, can the rot be stopped?

Whatever else might have been happening, there's no doubting Technics' commitment to the medium of which it is a co-founder. Its comparative DVD-A disc was produced by Communicator Ltd and involved a live recording of the Beethoven Concerto at CTS Studios. Recorded in a single three-minute take, the microphone feeds were mixed through an (analogue) Neve desk before Analogue-to-Digital conversion using a dCS 904 – just about the only choice of 192 kHz ADC for the professional. The digital output was stored on a GENEX 8500 MOD recorder and sent to Syrinx Music & Media in Germany where it was edited using a Sonic Solutions HD System – once again, just about the only authoring software designated to handle

When the hi-fi industry needs the truth about technology, Paul Miller is their first port of call.

the differences in 192kHz post-production. The CD take was recorded on DAT.

DISTORTING THE TRUTH

Nevertheless, the '192kHz' DVD-A version evidently sounds thicker and more distorted than the 44.1kHz CD version, and Fig. 1 (page 137) explains why. This Beethoven recording closes with an ambient ripple of ivory supported by strings that lies far to the rear of the soundstage. It's this cascade of piano that's visible as the series of peaks up to about 10,000Hz (10kHz) on the black (CD) trace which cuts off very clearly around 22kHz (half the CD sample rate of 44.1kHz). The remainder of the black trace from 20-100kHz is an innocuous carpet of ultrasonic noise from the DVD-A10 player. The red DVD-A trace of the same recording, however, clearly shows a mirroring effect or 'reflection' of these piano notes either side of 48kHz and 96kHz. These are pure digital distortion. In reality, a genuine 192kHz recording would continue the gentle, declining HF trend seen with the black CD trace out to higher frequencies.

THE PUNCHLINE

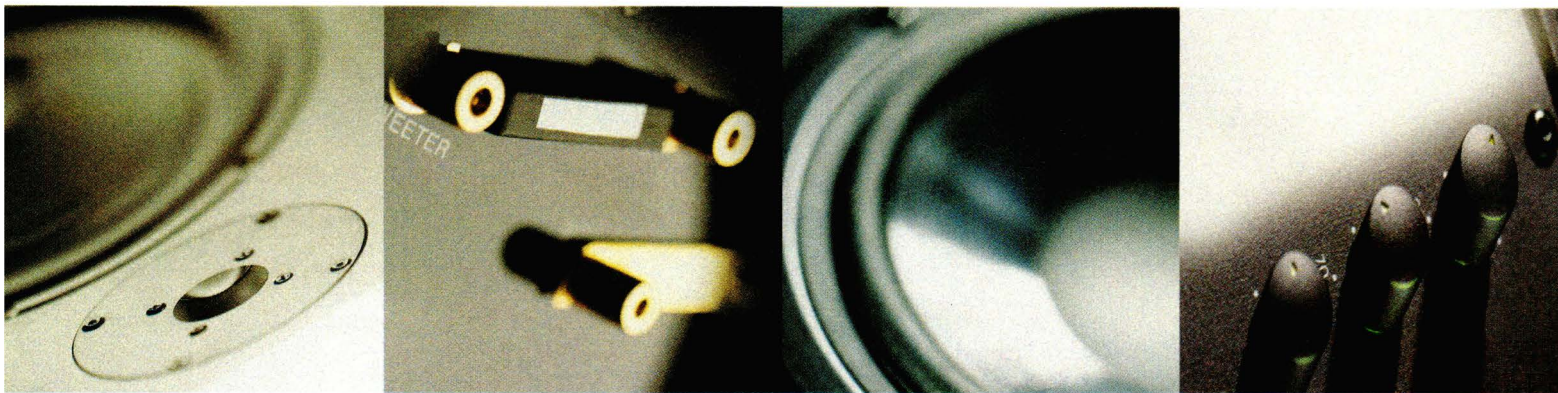
My investigations have revealed that it's not how the music is initially recorded, but how the digital data is *transported* between equipment that is causing the problem. Up until very recently, a 48kHz sample rate was pretty much the industry standard. Indeed, the AES committee was forced to change the AES3 specification to accommodate 96kHz sampled recordings several years ago. As yet, there's no equivalent standard for 192kHz digital audio, which opens up the possibility for 'crossed-wires' between hardware and software in different components of the recording chain. And that's just what's happened here.

During the recording, mixing and post-production of 96kHz-sampled music, the data is transmitted using what's called a 'quad-wire' technique. Here the two (for stereo) 96kHz channels are represented as four parallel 48kHz channels – left odd, left even, right odd and right even. Because standards and protocols are in place, any post-production software is able to correctly interleave these four 48kHz channels

Continues on page 137 ▷



**“IT’S NOT HOW
THE MUSIC IS
INITIALLY RECORDED,
BUT HOW THE
DIGITAL DATA IS
TRANSPORTED
THAT IS CAUSING
THE PROBLEM”**



Five Stars For Value

Paul Messenger explains why you should visit an independent specialist dealer if you are searching for real hi-fi satisfaction

Why use a specialist hi-fi dealer? The short answer is because he knows one hell of a lot more about hi-fi than you do. And if you've gone to the trouble of picking up a specialist magazine on the subject, you're obviously interested in something rather more than a mini system from the nearest electrical superstore.

You've probably bought this magazine for one of two reasons. You're looking for advice (presumably unbiased and good) on choosing and using your hi-fi system, and/or you're checking out the ads to decide where to go and buy it.

The independent specialist dealer doesn't know everything, and he doesn't know much about you, but if music's an important part of your life, he's the only guy around who's able (and hopefully willing) to help you choose the equipment which will give you the best long term satisfaction.

Power of the Press

Dealers sometimes moan to me about the power of the press, and the disproportionate influence of its 'Best Buy' and multi-star ratings. Well, I've been in the press for twentysomething years, and still feel more ignorant than powerful.

The more I mess around with hi-fi gear, the more I become aware of our lack of real understanding of the subtleties involved, and the more I appreciate the importance of the dealer's skills and experience, in bringing together components so that the whole is greater than the sum of its parts.

We hacks get paid to write words, often about components in isolation, because individual product reviews are still the staple diet of the press. They can sometimes provide a useful guide to the way a product performs, but only under the particular

circumstances in which the review was conducted.

The hi-fi reviewer attempts, with varying degrees of success, to evaluate a particular component, and find something interesting (and hopefully positive) to say about it. That's about the end of it, and it's on to the next product.

The magazine prints the review, and that very process magically confers a measure of authority. Experienced hi-fi enthusiasts, who read reviews over a period of years and try out various products themselves, soon start to realise the limitations of that approach. Some reviews are better than others, but none can get to grips with the real heart of the problem - whether a given product will improve your musical satisfaction, in your system and your room.

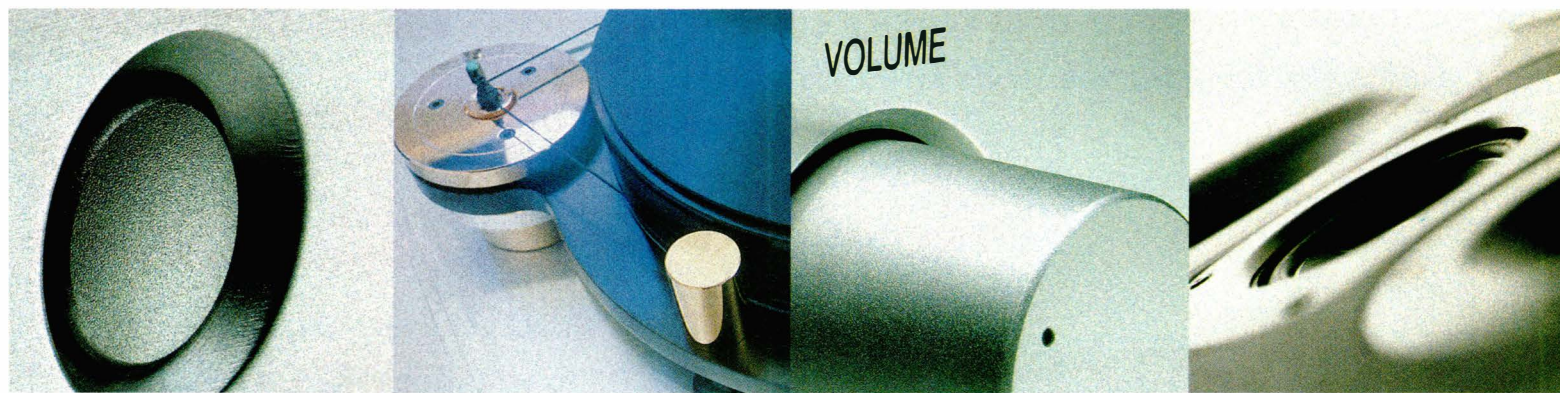
The Role of the Dealer

The dealer's role is very different, and potentially much more valuable. He has the chance to talk one-on-one. If he's good at his job, he'll use that opportunity to find out what you as an individual are looking (or listening) for.

His motivation is very different too. Sure he wants to make a sale. That's the lifeblood of any shop. But he also knows that if something he sells really does deliver long term satisfaction, there's a very good chance you'll come back again to see if he can repeat the trick some time in the future.

STAR QUALITIES

- value for money ★★★★★
- service ★★★★★
- facilities ★★★★★
- verdict ★★★★★



If you go into a shop and demand a particular CD player, on the basis that it got seven stars (out of five) in last month's magazines, the shop will probably simply take the line of least resistance and sell it to you. (Or switch-sell you to a similar price alternative, if he's fresh out of stock of that particular flavour-of-the-month.)

If you go in and say you're looking for a CD player, and want his advice on what to choose, things are liable to become more interesting. The onus is now on the dealer to show what he can do. His first task is to ask the right questions to try and get some idea of what you might be after.

Asking the questions is the easy bit. The real skill comes in using the information to come up with a shortlist of likely contenders, and then conducting a demonstration so that you have a real chance to play a central role in the decision making process.

Putting together a successful hi-fi system might not be as difficult as it was twenty or thirty years ago, but it's just as easy to make a mess of things. Put the 'wrong' combination of components together and it'll still sound a lot better than any cute little mini system package. It might even rate a five star review. But it won't match the potential of a carefully balanced and properly installed system, and it

certainly won't cater for your own particular preferences and personality.

We British are notoriously indiscriminating consumers, at a mass market level at least. The majority of the population don't even bother to drive a car they're thinking of buying, never mind take the trouble to listen to hi-fi equipment.

The majority will therefore end up with hyperstore mediocrity, and hi-fi that's about as tasty as supermarket bread. But if music is an essential ingredient in your daily diet, you owe it to yourself to become a member of the discriminating minority.

You know full well that your music collection is as individual as your wardrobe, and just as precious too, so it's worth taking the time and trouble to search out the dealer and equipment that will make that collection come alive, and give you a new buzz every time you play your favourite discs.

The independent specialist may not beat the chain store on price, but he continues to thrive in a hostile environment because real hi-fi is so much more than a matter of price. The people who work in these shops are themselves enthusiasts, often with many years of experience in meeting customer's needs, and the very necessary expertise to ensure that the whole thing is properly set up to deliver the best results.

The better the hi-fi, the more important it is to get the fine details right at the installation end of things, but even the least expensive equipment can be made to sound a whole lot better if good care is taken over the fine details - the support furniture, the cabling, the positioning of speakers and so on.

Without expert assistance even high class hi-fi can give mediocre results. With it you'll stand a very good chance of ending up with something rather more than a consumer durable - something which will be a source of considerable pleasure and genuine emotional satisfaction for decades to come.

I agreed to write this signed piece, irrespective of the specific sponsors, because I believe the independent specialist dealer plays a vital role in giving customers long term hi-fi satisfaction. The views and opinions expressed here are my own and not necessarily those of Hi-fi Choice.

Paul Messenger

The specialist Dealers listed here are professional and enthusiastic. Give your nearest a ring for a demonstration.

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020 8400 5555

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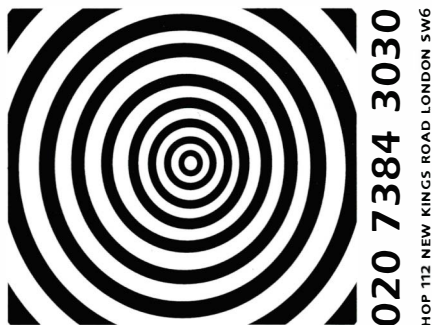
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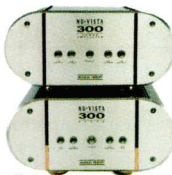
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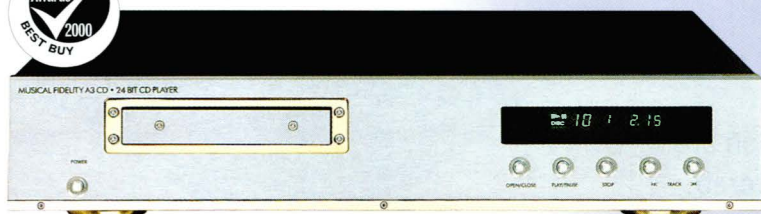
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Marantz CD6000 Ki Signature	£499.95
Marantz CD17 Ki Signature	£1099.95
Musical Fidelity X-Ray *Claim Free VDH D102	£799.95
Roksan Kandy KC1	£474.95
Sony SCDXB940 Super Audio CD	£499.95

*When purchased together with the X-A2 Amplifier

also available at **selected outlets**

Cyrus CD7, Naim CD5, Linn Genki,
Meridian 508 24-Bit and Sony SCD555ES.

Mail Order not available on Arcam and Marantz Products

Please Note: Advertisement valid until at least 13th December 2000, E&OE



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WHAT HI-FI?
SEPTMBER 2000

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WHAT HI-FI? ♦ OCTOBER 2000

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Michell Gyro SE (RB300)	Turntable	£919.95
Pioneer PDR509	CD-RW Recorder	£229.95
Project Debut II - Black*	Turntable inc OM5	£109.95
Sony MDSJE330	MiniDisc Recorder	£119.95
Sony MDSJB940	MiniDisc Recorder	£249.95
Sony STD777ES	DAB Tuner	£549.95
Yamaha MDX596	MiniDisc Recorder	£199.95

Please Note: Some products are not available at all outlets
*Colours available at additional cost

also available at **selected outlets**

Arcam FMJ DT26, Cyrus FM7.5, Linn Sondek LP12, Marantz ST17 and TAG McLaren Audio T32R.



Pioneer PDR509 CD-RW Recorder

CD-RW ♦ Digital Recording Level ♦ Coaxial & Optical Connections



WHAT HI-FI?
NOVEMBER 2000



SONY STD777ES DAB Tuner

DAB/FM/LW/MW ♦ 99 Presets ♦ Digital Output ♦ Remote Control



WHAT HI-FI?
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PRO-JECT Debut II Turntable



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selected amplifiers

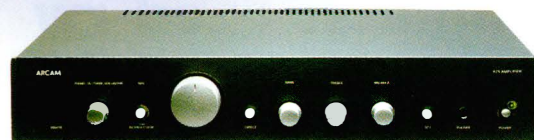
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Cyrus 7	£699.95
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Musical Fidelity X-A2 *Claim Free VDH D102	£499.95
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*When purchased together with the X-Ray CD Player

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Mail Order not available on Arcam, B&W, Marantz and Monitor Audio Products



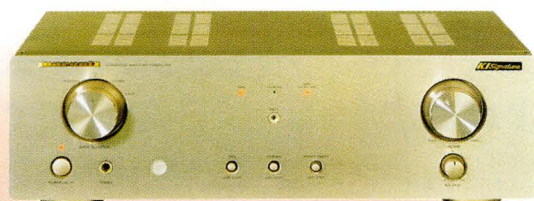
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WHAT HI FI? ◆ DECEMBER 1999

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Mission 773E	£399.95
Mission 780	£299.95
Monitor Audio Silver 8i	£699.95
Ruark Prelude Reference	£774.95

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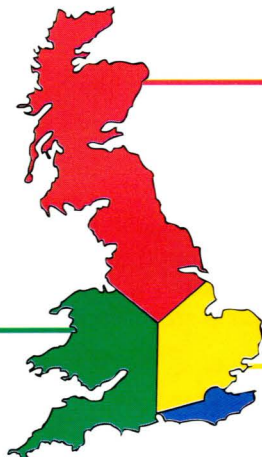
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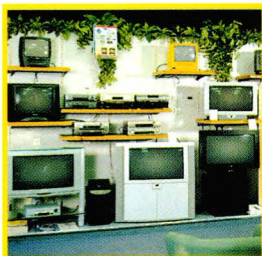
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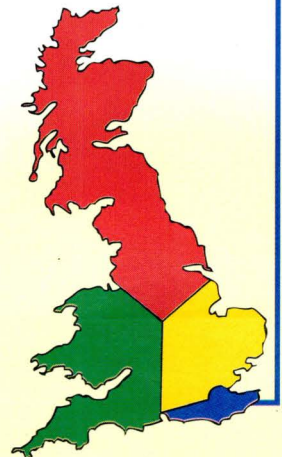
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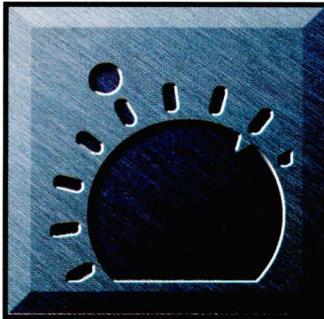
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Our friendly and experienced staff will be happy to assist you through every step of your purchase and will, when appropriate, deliver and install your equipment.

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AMPLIFIERS

The amplifier is at the heart of any hi-fi system, accepting the outputs from various music sources, increasing the amplitude of their signal and then driving the loudspeakers to produce sound. One-box 'integrated' amps rule the roost at low-to-middle price points, but if you pay more, the low-level and high-level signal processes are separated into preamp and power amp boxes, and even separate 'outboard' power supplies come into play. Another luxury is a separate amp for each stereo channel: such devices are known as monoblocks. Finally, output power and sound quality are not necessarily related. Some of the finest amplifiers outputs only 12 Watts, but will yield loudness aplenty when partnered with high-efficiency loudspeakers.

KEY TO SPECIFICATIONS

LINE INPUTS: Number of input sockets for line-level (non-vinyl) sources such as CD players, tuners and cassette decks.
MM PHONO INPUT: An input specially designed for moving magnet (high output) phono pickup cartridges.
MC PHONO INPUT: An input for moving coil (low output) phono pickup cartridges.
REMOTE CONTROL: An infrared handset to adjust volume etc.
HEADPHONE SOCKET: An integral output for headphones.
POWER OUTPUT (Watts): Our measurement of an amp's RMS power output into 8 Ohms.
RECEIVER: An amplifier with built-in radio receiver (tuner).
ISSUE NUMBER: The issue of Hi-Fi Choice in which an original review appeared.

B BEST BUY **R RECOMMENDED** **E EDITOR'S CHOICE**

AMPLIFIERS

SPECIFICATIONS

LINE INPUTS MC PHONO INPUTS REMOTE CONTROL HEADPHONE SOCKET POWER OUTPUT (W) RECEIVER ISSUE NUMBER

STATUS	PRODUCT	(£)	COMMENTS	LINE INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	RECEIVER	ISSUE NUMBER
	Affordable Valve Co. EL34	650	A real bargain on the face of it, but the sound is oh so soft, warm and old-valve. Too much of a good thing	4				40		202
	Alchemist Kraken APD6A	599	Compact, with Darth Vader styling, yet sound quality is meek and mild, despite strong midband dynamics	5	●			55		175
R	AMC 3025a	140	Surprisingly potent and easy on the ear, if not especially analytical – classic bargain-basement material, in fact	4	●	●	●	30	●	171
R	AMC 3050a	170	Tremendous value for money, and a full, big, if rather uninformative sound	4	●	●	●	45	●	167
E	Arcam Alpha One	230	Rather like an Alpha 7 but without the remote control and what appears to be better sound quality still	6				35	●	186
	Arcam Alpha 7R	300	Decent, if slightly system fussy amplifier that no longer pulls all the right strings	5	●			45	●	196
	Arcam Alpha 8R	350	Workmanlike amplifier is well thought through, but is now beginning to show its age.	5	●			50	●	208
R	Arcam Alpha 9	500	Not quite a match for the Alpha 9/9P combo, the solo integrated is nevertheless colourful and explicitly detailed	7			●	70	●	168
R	Arcam Alpha 10	800	Although not the best sounding in its class, the Alpha 10's modular nature demands it be taken seriously	5			●	100	●	181
E	Arcam FMJ A22	1,000	Powerful, articulate, and expandable into a home cinema or multiroom amp/controller	7			●	100	●	201
E	ATC SIA2-150	1,984	An impressive sounding integrated amp with a dynamic, open and detailed sound	4			●	150	●	192
	Aria S2	1,000	Clamorously packaged valve amp produces a real eyes closed, feet up kind of sound	4				12		190
E	Audio Analogue Puccini	450	Superbly finished, the entry-level Audio Analogue performs way out of its class	5	●	●		40		175
	Audio Analogue Puccini SE	595	Upgraded, more powerful Puccini is disappointingly sluggish and curiously lacking in musical vitality	5	●	●		40		181
R	AVI S2000MI	999	Fine, detailed amplifier with excellent timing and strong control of a wide range of loudspeaker loads	5			●	100		175
	Bryston B60R	1,249	Great build, but the lazy bass and opaque treble bracket an articulate midband. Comes with 20 year guarantee	5			●	60	●	175
R	Cambridge Audio A500RC	200	Solid value, decent build and a surfeit of watts make this an attractive proposition, but it can sound slightly loose	6			●	50		196
R	Canary Audio CA-608	1,495	If you value the grand scheme of things and appreciate a bit of dynamic vigour this could be the amp for you	4				24		202
R	Copland CSA8	945	Sophisticated yet transparent, this is one of those amplifiers that sounds good even when the gloss has worn off	5				60		168
R	Copland CSA 28	1,249	Elegant Scandinavian cool, abundantly detailed if somewhat system dependent	5	●		●	60		189
	Copland CTA 402	1,698	A unusually flexible valve amp with an attractive and textured sound	5	●		●	35		193
	CR Developments CR324	569	Solid and capable on paper, this is a bit of a blunt instrument when let loose on the music	5				150		181
R	Cymbal CA1	499	Lacklustre amplifier tends to underperform with complex material. Best with straightforward compact loudspeakers	6				40		178
	Creek 4330	279	Diminutive but classy amp will drive anything, and can be specified in various configurations	4	●			40		192
	Creek 4330SE	499	Somewhat perplexing, though always interesting, miniature audiophile amplifier, needs careful system matching	5			●	50	●	208
R	Cyrus 5	500	A enjoyable amp that is assured and unflappable, although detail is unremarkable	7			●	45	●	205
R	Cyrus 7	700	Welcome return to form for the Cyrus stable: this is the best sounding audio brick around	6			●	60	●	196
E	Denon PMA-255UK	140	Great beer-budget buy, with everything necessary for basic but decent high fidelity operation	5				30	●	208
	Denon PMA-535R	230	The kind of amp they made in the 70s, dressed to the nines, and nowhere to go	5	●		●	50	●	192
	Denon PMA-725R	350	Warm, bold, up-front presentation, but musically unexciting	5	●	●	●	97	●	157
R	Denon PMA-1500R	500	Recommended for its outrageous power, especially with problem speakers	5	●	●	●	70	●	181
R	Densen Beat B-100 MkII	650	High 'air guitar' factor, and can punch above its weight, but check it will complement your system	5				60		175
	Densen DM-10	1,375	Big, bold and expressive amplifier, but sometimes rough around the edges, and not as powerful as it appears	6				75		189
	Edmund Audio ESI10	400	Honest but unexciting straight line amp from REL associate company	6				85		192
	Electrocompaniet EC1-3	1,000	Basically good, but too many rough edges to warrant recommendation	6			●	75		201
	Ezo Aria HE	449	Quick, detailed but aggressive and sometimes coarse sounding amp. Beautifully turned out, though	5				40	●	208
	Graaf Venticinqe	1,790	Smart and practical, but it just never seems to shine sonically	6				25		202
R	Harman/Kardon HK630	200	Sharp, clean but sometimes slightly raw-sounding budget amp	4	●		●	40	●	192
	Harman/Kardon HK690	530	Bold, dynamic amplifier with plenty of balls, but not the most sophisticated sound on earth	6	●		●	100	●	196
	Hofli Audis Signature	750	A 'no-feedback' circuit giving outstanding resolution, but significant load dependency	4	●			65		181
	Jolida 202	695	Well-built and technically accomplished, affordable valve integrated with subtle refined, if not quite gripping sound	4				40		168
	JVC AX-R5	200	Versatile, and lots of even-handed, articulate detail; but let down by superficiality	5	●		●	45	●	149
	Kenwood KAF-3010R	180	Plenty of twiddly bits yet weak on inputs, and basically good, but somewhat uneven sound quality	4	●		●	70	●	186
E	Kenwood KAF-3030R	250	Highly capable amp with good treble, bass and fine detail	5	●	●	●	65	●	205
	Kenwood KA-5090R	300	Large, well equipped and high tech integrated, but TRAITR output still gives a harsh, unsubtle performance	5	●	●	●	65	●	171
	Krell KAV-500i	5,000	More at home in background listening/home cinema applications than out-and-out audio maniac set-ups	5			●	250		192
	Lundahl Mag Amp	1,735	Unusual valve/magnetic amp hybrid with relaxed balance and good timbre	5				23		196
R	Magnum IA120	265	Mirror finish amplifier with bold, colourful delivery, but needs careful system matching to avoid loss of clarity	6			●	65		171
	Magnum Class A SE	795	A MOSFET amplifier drawing inspiration from the world of valves, this is an erratically refined, detailed amplifier	5	●			80		175
	Marantz PM-6010 OSE	229	Good starter amplifier, with characteristic smooth, low key delivery	5	●		●	50	●	196
	Marantz PM7000	300	Lots of power for the price, but detail and subtlety seem to have been sacrificed	6	●		●	115	●	205
	Marantz PM6010 OSE KI Sig	400	Well-made, but somewhat ill-balanced amplifier that doesn't slot into most systems comfortably	6	●		●	50	●	208
	Marantz PM-17	900	Probably worth it for the WBT terminals and other build features alone, but this model doesn't sing as it should	6	●	●	●	60		181

CONTINUED

AMPLIFIERS

SPECIFICATIONS

MM PHONO INPUTS
MC PHONO INPUTS
REMOTE CONTROL
HEADPHONE SOCKET
POWER OUTPUT (W)
RECEIVER
ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	MM PHONO INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	RECEIVER	ISSUE NUMBER
Marantz PM-17 Kl-Signature	1,300	Full feature audiophile amp where the end results don't quite justify the fantastic ingredients	6	●	●	●	60	189	
Monrio Asty	400	Engaging, but ill-disciplined, even OTT amplifier with unpredictable system compatibility	5				55	178	
Musical Fidelity E1	199	Richly flavoured tone and realistically-scaled imagery distinguish this entry-level Richer Sounds special	6				30	171	
Musical Fidelity E11	299	Well built minimalist amp with a five year guarantee, but can sound congested when extended	6				60	178	
Musical Fidelity X-A2	500	A chip off the old block; sounds very similar to the X-A1 and XA-100R	6				75	208	
Musical Fidelity A3	849	Similar to the XA-100R internally, and a little too relaxed for some	5	●	●	●	85	196	
Musical Fidelity X-A100R	999	Sings like a thoroughbred, but better with Mozart than Mötörhead	6			●	75	189	
MVL A2	970	Curiously designed, and curious sounding amplifier with Sound Sentinel circuits to address perceived weaknesses	9	●		●	100	201	
Myryad T-40	400	The T-40 is a well built and sensible, but needs more dynamics and finesse	6	●		●	50	192	
Myryad M1120	600	Well styled, well built: a good, even tempered amplifier, although it can sound rather brittle	6			●	60	175	
NAD 310	100	Fleet and sure of foot, it seems likely to set all appendages tapping with its blend of enthusiasm and artfulness	5				20	149	
NAD C320	200	Excellent budget amp from the maker of the seminal 3020 offers better clarity and neutrality and good build	6			●	40	186	
NAD C340	270	A classic NAD amplifier copes with any speaker, delivers plenty of power, and does so with calm decorum	6	●		●	50	192	
NAD C350	300	A typical NAD: refined, warm tonality, adequate detail, and a strong power yield	7			●	60	208	
NAD 317	470	Build quality aside, the current improved version is a real powerhouse, but smooth and detailed too	6			●	80	196	
NAD S300	1,900	Substantial integrated with loads of power and no shortage of finesse, slightly bass-strong	5			●	100	189	
Opera Aida	795	Low power (in practice) minimalist integrated amp, but the mahogany wings don't help it to fly	5	●	●		60	201	
Pathos Classic One	995	Unusual looks and even more unusual electronic design, but compromised musical potential	5			●	55	202	
Pioneer A-300R	200	Its bright and breezy sound is a natural tonic to those of us worn down by the ongoing stress of life	5	●		●	50	1149	
Pioneer A-407R	230	Clean, consistent, finely detailed sound, good finish and (mainly) good build	5	●		●	45	186	
Pioneer A-607R	300	Lively, articulate amp with plenty of drive and a hint of brightness	5	●		●	60	192	
Pioneer A-300R Precision	400	Sophisticated variant of the A-300R. Not an obvious winner, but it slowly plys you with its subtle charms	5	●		●	35	162	
Pioneer A07	999	Curious blend of high-end attributes and inconsistent, though undeniably detailed sound	5	●		●	80	175	
Præcis Acustica Sonoro	1,800	It is not often that transistor amplifiers are made to sound so palpably valve-like	5			●	100	189	
Primare A-10	500	Beautifully made, smooth and easy sounding, and though not overtly detailed or dynamic, is well organised musically	6			●	50	208	
Primare A20 MkII	799	Everything except packaging has changed in Mk II version: but balsier model has lost none of its refinement	5			●	70	181	
Primare A30.1	1,499	Superb build and aesthetics, and undemonstrably musical down to its smallest screw	6			●	100	189	
Rega Elex	398	Minimalist amplifier, derived from Elicit, is a little uninspiring, although at least it is well behaved	4	●			50	162	
Restek Fantasy II	1499	Muscular, but ultimately rather strident amplifier which needs careful system matching	6			●	100	189	
Roksan Kandy KA-1	475	Power with control, barely compromised by a small degree of dryness	6	●		●	120	205	
Roksan Caspian	795	Mainstream Roksan line level amp works well under most circumstances	6	●		●	70	201	
Rose Scion	615	Unique two-box integrated gives real subtlety and low level resolution, but the sound lacks scale and weight	5	●	●		65	168	
Rotel RA-931 Mk II	189	Simple, non-remote amp majors on clarity and transparency, without sounding over-analytical	4	●			35	208	
Rotel RA-971 MkII	225	Improved AR971 is a chip off the old block: bags of power, but with added precision and clarity	6				60	196	
Rotel RA-972	450	Better in the treble than the bass, which is a little too rounded and woolly	6			●	90	205	
Sharp SM-SX100	10,000	The world's first stable, 1-bit digital amplifier is a technological milestone that should go from strength to strength	n/a				110	200	
Sony TA-FB740R	200	Very open and clear sound, comfortable with a wide range of musical styles	5	●		●	60	205	
Sony TA-F448BE	250	Minimalist interface is matched to carefully considered circuit with satisfactory effect – but keep the volume in check	5	●		●	55	171	
Sony TA-FB940R	300	Technically innovative amplifier fails to cut the mustard with complex material	5	●	●	●	70	208	
Sony TA-F3000ES	500	Champagne 'shoebbox amp' may lack power reserves, but is quick and articulate. In every sense a knockout	5	●	●	●	35	178	
T+A PA-1220R	1,445	Unique presentation and feature set, but sometimes rather relentless sound quality	7			●	100	189	
Tact Millennium Mk II	7,000	This digital class D amplifier represents a bold declaration on the future expansion of digital audio in the home	n/a			●	150	194	
TAG McLaren 60i	800	Clean, slightly antiseptic sound from this beautifully turned out entry level Audiolab 8000LX replacement	6			●	60	189	
TAG McLaren 60iRv	999	Looks, feels and sounds better than the Audiolab it supersedes. Smooth, open, refined but lacks body and drive	6			●	60	184	
Talk Electronics Storm 1	500	Good soundstaging and strong detail are provided by this unassuming and not especially powerful model	6				50	162	
Talk Electronics Cyclone 1	550	Much improved build quality and silver finish, but the sound lacks physicality and can sound strained	6				65	196	
Talk Electronics Storm 2	650	Crisp, clean, well defined sound, arguably lacking warmth, but a good midrange purchase overall	6			●	50	175	
Teac A-E2000	180	Has the potential to cause significant damage in the budget amp sector once the wrinkles are ironed out	6				50	195	
Technics SU-A660 Mk 3	200	Plenty of wellie for the price, but the sound can be a tad coarse and lacking in fine detail	5	●		●	37	186	
Technics SU-A808	300	Intriguing amplifier, with abundant detail but dynamically rather flat	5			●	55	196	
Technics SU-A800D Mk 2	300	Two-box amplifier looks great, has plenty of gadgets, and makes good, if slightly overexuberant, music	5	●		●	55	178	
Technics SU-A900D Mk 2	400	Looks like a pre/power amplifier, but in effect it's an integrated, with a rather soft-centred sound to match	5	●		●	70	175	
Token Audio K50	350	Stainless steel finish, others available. Sound is warm and attractive, though a little undynamic	5				50	186	
Tube Technology Unisig	2,400	A very attractive product which combines many classic valve attributes to good effect	5	●			30	202	
Yamaha AX-392	170	Standard budget fare, and it's easy to pick holes, but in undemanding surroundings it works creditably	6	●		●	60	192	
Yamaha AX-496	179	Lacklustre, if well equipped and powerful, amplifier shows some improvements over previous amps, but not enough	6			●	85	208	
Yamaha AX-492	220	Powerful, well equipped amplifier at an attractive price, offers powerful and engaging music-making	5	●		●	85	178	
Yamaha AX-592	280	Fine, middle ranking amplifier, with a detailed midband but performance declines at frequency extremes	5	●	●	●	100	171	
PREAMPLIFIERS									
Amp Flux System 2	3,000	Three-box affair with a clean, spacious sound and plenty of slam. A touch steely, but undeniably potent	5			●	50	187	
Alchemist Kraken APD7A MkII	549	Unusual looks and unusual sound too, rather rough and lacking detail	6					187	
Arcam Alpha 9C	400	Well specified and flexible preamp with sound only just lacking in greatness	6			●		187	
Audio Note M Zero	299	Neat shoe box-size preamp. Able to impart music with real life and soul when partnered with P Zero power amps	5					191	
Copland CTA-301MKII	1,249	Sweet sounding, but never gets bogged down in audio treacle	4	●				151	
Creek P43R	350	Excellent sound, remote control operation and upgrade options from this fine value preamp	6			●		187	
Crimson CS610	450	Good, clear sound, including a decent phono stage, but flexibility is limited	3	●	●			187	
Cyrus aCA7	798	A decent enough unit at the price but not as good as the Cyrus aPA7 power amp it was tested with	5			●	●	190	
Densen Beat B-200	1,000	A versatile preamp with a high 'air-guitar' factor and Densen's characteristic styling	6	●	●			191	
Levinson 380	3,995	True high end preamplifier combines precision and warmth with unusual configurability	6			●		195	
LFD Mistral Linestage	449	Strong ergonomics, generally decent sound, but a little lacking in detail	6					165	
Meridian 502	1,295	Extremely sophisticated analogue controller with tremendous flexibility and a fast and tidy presentation	7			●		162	
Michell Orca	1,650	Line-level design with a gorgeous remote and focused, spacious sound. (Tested with Alecto power amps)	6			●		187	
Moth 30 Active Line Stage	349	Excellent-sounding ultra-simple miniature preamp	4					165	
Muse Model Three	1,990	Natural sounding tranny preamp with useful audiophile features. Works beautifully with 160 power amp	5					166	
Musical Fidelity X-PRE	200	Cleverly configured preamp with many upgrade options, and open, lively and engaging sound	4					175	
Musical Fidelity X-P100	800	Good long-term listening prospects; detailed and a little fruitiness (tested with X-A200 power amp)	6	●		●		200	
NAD 114	270	Beer-budget preamp which sounds focused, detailed and consistent	6	●	●	●		165	
NAD Silverline S100	600	Beautifully built kit that sounds as good as it looks (tested with S200 power amp)	7			●		200	

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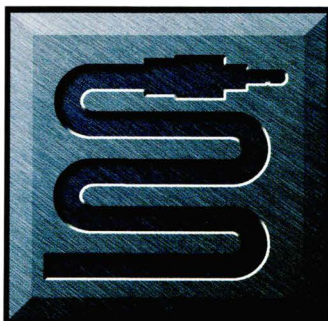
AMPLIFIERS

SPECIFICATIONS

MM PHONO INPUTS
MC PHONO INPUTS
REMOTE CONTROL
HEADPHONE SOCKET
POWER OUTPUT (W)
ISSUE NUMBER
RECEIVER

STATUS

PRODUCT	(£)	COMMENTS	MM PHONO INPUTS	MC PHONO INPUTS	REMOTE CONTROL	HEADPHONE SOCKET	POWER OUTPUT (W)	ISSUE NUMBER	RECEIVER	
Naim NAC92R	630	Upgradeable preamp uses proprietary socketry. (Tested with NAP90 power amp)					5		165	
Naim NAC102	1,000	More of a 'character act' than a neutral reproduction system, majors on excitement at the expense of subtlety					6		200	
Rega Hal	998	Passive line stages dedicated to Exon power amps					6		165	
Rotel RC-971	150	Low price is offset by rather coarse sound quality with certain types of music. (Tested with RB-971 power amp)					5		178	
Rotel RC-995	525	Highly capable, though less astonishing value than matching RB-991 power amp (tested as pair)					6		200	
Samuel Johnson pca100	1,800	Stylish wood and metal fascia - precise, clean sound with an emphasis on leading edges					6		201	
TAG McLaren PA20R	1,500	Refinement of Audiolab original with clean, detailed sound but limited thrill power. (T/w 125M monoblocks)					6		184	
Talk Hurricane 2L	649	Design of integrity which gets to the heart, if not the soul, of the music					6		165	
Technics SU-C3000	2,997	Price includes SE-A3000. Supremely clean and even sounding combo, though it could be more musically involving					5		188	
Technics SU-C1010	300	Although the sound's basically all there, it's arguable that a good integrated offers more, for less					6		200	
POWER AMPLIFIERS										
Alch. Kraken APD8A Mk II	549	Unusual looks and unusual sound too, rather rough and lacking detail					1		55	187
Arcam Alpha 9P	400	Clear, colourful and well-disciplined, the Arcam is a strong all-rounder that can compete with conviction					1		60	165
Arcam Alpha 10P	600	Well made and flexible: upgradeable to 3 channels. Good sound lacking the last degree of detail					1		100	187
Audio Note P Zero	599	Neat shoe box size valve monoblocks, priced per pair. Impart music with life and soul. (Tested with P Zero preamp)					1		8	191
Border Patrol 300B SE	3,995	Single ended valve power amp with passion, grace and fire, and plenty of grunt to boot					1		8.5	186
Cary CAD 2A3SE	1,575	Monoblock valve power amp. Low power but gives delightful speed, coherence and transparency					1		5	196
Copland CTA-505	2,099	Grown-up amplifier with a refined, yet never over-civilised air					1		67	151
Chord SPM-4000	8,500	Sound is as stylish as its appearance is bold. Probably one of the best amps you are likely to hear					1		410	202
Creek A52SE	599	Well designed and built amplifier with plenty of power, detail and refinement					6		100	187
Crimson CS630	800	Space-saving slimline monoblocks with both grunt and finesse					1		100	187
Crimson 620C	875	Not entirely satisfactory power amp which has dynamic strengths, but underachieves when the volume is raised					1		50	181
Cyrus Power	498	Detail and midband clarity and stand-out qualities. Smooth and refined with most types of music but bass-soft					1		50	183
Cyrus aPA7	1,896	Low feedback design that's a positive departure from the transistorised norm. (Tested with Cyrus aCA7 pre)					1		150	190
Densen B-300	800	Expensive but highly musical. Colourful and warm sound with strong timing and listener involvement					1		100	183
Gamut D200	2,995	Single MOSFET pair per side gives tremendous resolution and timing (balanced only). Formerly Sinus					1		200	183
Levinson 334	5,495	A mailed fist in a velvet glove; refined, authoritative and transparent					1		125	195
LFD Mistral Power	449	Infectious upper band vitality, but LF dynamics lacking - likewise 'grip' and transparency					1		60	165
Michell Alecto Monoblocks	1,950	Hefty beasts offering real power and striking imaging. Not the last word in timing. (Tested with Orca preamp)					1		100	187
Moth 60 Watt Stereo	599	Miniature power amp lacks control and finesse - not comfortable with difficult speaker loads					1		60	165
Moth 30 Series Monoblocks	879	Tested with Active Preamp. Demonstrated solid balance and proved adept at delivering vital musical qualities					1		100	155
Musical Fidelity X-A50	500	Cleverly configured and attractively packaged, open, lively and engaging sound. Reviewed with X-PRE					1		50	175
Musical Fidelity X-A200	1,000	Good long-term listening prospects; detailed and a little fruity (tested with X-P100 preamp)					1		200	200
Musical Fidelity NuVista 300	3,300	Powerful smooth sound with tremendous bass extension. Capacity to fulfill the demands of the most dynamic material					1		350	199
Myryad MA120	450	Based on MI120 integrated - see letter for comments, but sounds significantly better when bi-amped with MI120					1		60	165
NAD 214	370	A little lightweight, but detailed, consistent sound quality, and excellent value for money					1		80	165
NAD Silverline S200	1,400	Beautifully built kit that sounds as good as it looks with heaps of power (tested with S100 preamp)					1		200	200
Naim NAP90	450	Power amp from a Nait integrated with some improvements					1		30	165
Naim NAP180	1,122	More of a 'character act' than a truly neutral reproduction system, majors on excitement at the expense of subtlety					1		60	200
Naim NAP500	10,000	Wonderful neutrality, bandwidth and dynamic range, plus Naim's traditional leading edge definition					1		140	208
Samuel Johnson ppa100	2,200	Stylish wood and metal fascia - nimble, high resolution and highly coherent sound					1		50	201
Technics SE-A1010	350	Although the sound's basically all there, it's arguable that a good integrated offers more, for less					1		90	200
Technics SE-A3000	2,997	Price includes SU-C3000. Supremely clean and even sounding combo, though it could be more musically involving					1		100	188
Thule Spirit PA100	600	More successful than matching preamp: sound is gutsy and lively, and generally clean					1		100	187
Rega Exon	1,196	Monoblock, priced each, dedicated for Hal preamp. Bold, outgoing, in-command kind of sound					1		125	165
Roksan Caspian Power	595	Excels musically and in conventional hi-fi terms. A power amp for people with long-term satisfaction in mind					1		70	183
Rotel RB-971	200	Somewhat better than the accompanying preamp - clean, mean and bridgeable. (Tested with RC-971)					1		70	178
Rotel RB-991	600	Top stuff and stunning value: rather outshone the matching RC-995 preamp (tested as pair)					1		200	200
Rotel RB-980BX	450	Tames enthusiastically recorded material with a laid-back and occasionally smeared sound					1		120	155
TAG McLaren 125M	2,400	Refined Audiolab replacement monoblocks with clean sound but limited thrill power. (T/w PA20R preamp)					1		145	184
Talk Tornado 2	600	Good, but slightly retiring sound which lacks the authority to stand out in a crowd					1		65	165
PHONO STAGES										
Clearaudio Symphono	740	Slightly inconsistent balance mars the performance of this lively performer					0			201
Creek OBH-9	160	A neat little unit with an essentially neutral and listenable character					0			189
Cyrus aEQ7/PSX-R	826	Very hi-tech product which tends too much towards smoothness except at climaxes, which can be rough					0			189
Densen DP-Drive/DP-02	350	Quite unusual design in many ways: sound is mostly good but never quite shakes off a 'synthetic' quality					0			189
Electrocompaniet ECP-1	495	An excellent phono amp that combines well-rounded balance with detail and low noise					0			189
Moth 30 Series Phono	249	Fine sound all round, in any kind of music, from this bargain phono stage					0			189
Musical Fidelity X-LP2/X-PSU	628	An enjoyable listening experience in its way, but a bit short on inner details					0			201
NAD PP-1	40	A basic phono stage that does its job rather coarsely: a bit bass-shy too					0			189
Pass Labs XOno	2,995	Not absolutely neutral, but the overall result is so beguiling it's hard to resist					0			201
Primare R-20	500	Fights a little shy of densely scored music, but generally an enjoyable and neutral performer					0			201
Pro-Ject Phono Box	40	Moving-coil compatibility is a dubious extra in a way, but MM performance is acceptable at this giveaway price					0			201
QED Discsaver DS-1	35	It's cheap, it's cheerful, it's OK - perfectly adequate for use with a phono-less integrated, though not very refined					0			189
Roksan Artaxerxes X/DS1.5	1,150	Delicate and well balanced, slightly congested at climaxes. Power supply expensive, but runs two Roksan components					0			189
TAG McLaren PPA20	1,549	One of the best-equipped phono stages available. Resolution is excellent, but timing is marginally behind the best					0			187
Tom Evans The Groove	1,500	Plenty of detail, excellent imaging and almost flawlessly neutral: a good choice for information retrieval off any LP					0			201
MULTI-CHANNEL AMPLIFIERS										
Arcam Alpha 10 DAVE/10P	2,500	Packed with a diversity of electronics that against engineering odds sounds extremely good					5		110	198
Cyrus AV5	1,000	Few processors are as adept with music. An effective multi-channel solution for music fans					4		N/A	201
Denon AVR-3300	800	Not as powerful as Denon claims, but nonetheless capable of impressive high-fidelity multi-channel sound					4		75	198
Marantz SR5000	500	Something of a rough diamond, but a powerful and entertaining package					5		105	198
Musical Fidelity HTP/HT600	3,998	A very well matched pairing with considerable musical talents					8		100	207
NAD T770	1,000	Lacks both transparency and subtlety while the omission of dts will be a drawback for some at this price					5		90	198
Nakamichi AV-10	1,000	A very powerful AV receiver that's easy to install and set-up with a civilised and subtle performance					4		140	198
Pioneer VSX-908RDS	1,000	A flexible heavyweight AV receiver whose sound is just a little too stodgy and lacking in crispness					4		80	198
Roksan Caspian DSP	2,290	A potent combination offering the bare essentials of DD and dts decoding					4		130	198
Rotel RSP-985/RPB-985 MkII	2,225	The hugely versatile processor is the weaker subjective link in this otherwise impressive combo					3		130	198
Sony TA-VA777ES	1,500	Dual purpose model with enthralling midrange and presence, that does music and movies with equal aplomb					6		100	205
Sony TA-E9000ES/N9000ES	2,300	Big, gold, powerful and remarkably versatile but fails to cut the sonic mustard					5		110	198



CABLES

Cables are an integral part of a hi-fi system, required to connect source components to amplifiers, and the latter to speakers.

- Analogue Interconnects connect source components and amplifiers, and run between pre and power amps. They are priced for one-metre terminated pairs.
- Digital interconnects connect CD transports to DACs or digital recorders. They come in optical and electrical varieties, the former being made of plastic or glass. The prices shown are for a terminated linear metre.
- Speaker cables are used between the amplifier and speaker. Our prices are per unterminated metre. Termination (plugs and soldering) costs vary.

KEY TO SPECIFICATIONS

- **SYMMETRICAL:** A twisted pair of conductors.
- **COAXIAL:** A central 'hot' conductor and a shield that carries the negative signal.
- **STRANDED:** Multiple strands with no intervening insulation.
- **SOLID CORE:** Single or multiple, individually insulated strands.
- **COPPER:** Material used for conductor.
- **SILVER:** Material used for conductor.
- **DIG CABLE TYPE:** O - optical digital; E - electrical digital for CD Players, DACs and digital recorders.
- ISSUE NUMBER:** The issue of Hi-Fi Choice in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

CABLES

SPECIFICATIONS

SYMMETRICAL COAXIAL STRANDED SOLID CORE COPPER SILVER DIG CABLE TYPE ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIG CABLE TYPE	ISSUE NUMBER
ANALOGUE INTERCONNECTS (PRICES PER TERMINATED METRE PAIR)										
Acoustic Precision Eikos	89	Not entirely neutral: probably best suited to upbeat music. Very stiff construction				●	●			188
Audio Note AN-A	18	Not especially impressive: warm but well-rounded balance that restricts 'air' but is quite clear	●				●			108
Audio Note AN-C	35	Neutral but lacking in subtle texture and unable to distinguish fine detail						●	●	131
R Audio Note AN-S	99	Up-beat and enthusiastic sound with satisfyingly deep and grumbly bass	●					●	●	131
Audio Note AN-V	179	15 individually insulated silver strands make up this very clean and dynamically unchallenged cable	●				●			131
Audioquest Topaz X2	60	Well made but let down by a pervading sense of muddle and congestion in the sound	●				●	●		188
R Audioquest Coral	99	Slightly forward imaging hardly detracts from its excellent tonal qualities and detail	●				●	●		200
R CableTalk Advanced 2	35	Slight roughness in loud music barely detracts from a well-balanced performance with good imaging	●				●	●		176
R Cable Talk Studio 2	65	A first-class performer from tonal, dynamic and rhythmic standpoints	●				●	●		160
Cambridge Pacific	30	Lacks subtlety and bass impact but is otherwise quite serviceable for the price				●	●	●		176
R Cambridge Audio Studio Ref	40	Dynamic cable with strong soundstaging and only a slight lack of detail				●	●	●		160
Cambridge Silver Spirit 60	100	Good bass but a lack of detail and differentiation of instruments	●							188
Chord Cobra 2	50	Good, strong sound with full-bodied music, less happy with smaller forces				●	●	●		176
Chord Chameleon 2	90	Deep bass is fine but despite that the sound can be a bit hard and lacking body and resonance	●				●	●		188
R Connections Midas HD	39	Canary yellow cable with excellent plugs and an open sound. Slight treble glare	●				●	●		160
R DNM Reson	40	Seemed a little harsh in the test system, but can work well and should be tried	●					●	●	200
Goertz M1 Interconnect	145	Soft sound lacking in bite, with excessive and plummy bass (NB sample used in review was only 0.5m)	●				●	●		176
Insert Audio IC100 MKII	47	Mostly good sound is let down by pervasive dryness					●			176
R Insert Audio Image 5.1	85	Very good detail and imaging: perhaps a touch bass-light				●	●	●		200
R Ixos 104	20	Open and detailed presentation, full bass and silky if overly smooth treble				●	●	●		131
Ixos Gamma 1002	39	Lumpy bass, grainy treble, and poor integration. Nice colour, though	●				●	●		176
R Ixos 103	45	Even-handed and generous sound, bass has a well-rounded, bouncy quality				●	●	●		131
Ixos 102	60	A bit bright and undynamic, this cable is nevertheless a good all-rounder, whose faults are largely subtractive	●			●	●	●		160
Ixos 1000	90	Nothing badly wrong, just a little bit bland and outshone by others at the price	●				●	●		200
Ixos 101	100	A cable with personality: its veiled and shut in quality bring an earthiness to vocals and rhythm guitar alike				●	●	●	●	131
R Kimber PBJ	68	Assured sound, solid and natural bass and clear treble – excellent performance all round					●	●	●	188
R Kimber Hero	110	Slight roughness detracts from some music; seems well suited to rock and jazz. Lively and detailed	●				●	●		176
R Moth Ley Line Black	100	Offers a full sound, neutral yet very solid and confident in delivery. Expansive imaging retains music's energy	●				●	●	●	108
Moth Ley Line Grey	200	Detailed, but there's a sense of distance between music and listener: vocals are coarse rather than liquid	●				●	●	●	108
Nordost Black Knight	60	Flat black cable that is distinctive but slightly coloured – but not in a wholly negative manner				●	●	●		160
R Nordost Solar Wind	85	Good tone and dynamics, with just occasionally a touch of bass-lightness in busy music	●				●	●		188
R Nordost Blue Heaven	145	Very good bass and only slightly grainy treble add up to a well integrated, natural-sounding cable	●				●	●		176
Precious Metals SS35	50	Extended bass, but dry character suits electronic music better than acoustic				●	●	●		188
R Prowire Silver	60	A good cable in every way, with just the occasional hint of coloration and coarseness					●	●	●	176
R QED Qnect 2	30	Very well balanced, refined and detailed, this is everything a good cable should be, and excellent value					●	●	●	176
R QED Qnect 4S	70	Some coloration and roughness in the midrange and treble, but bass is gratifyingly solid	●				●	●		188
R QED Qnex Silver Spiral	90	A great cable for lovers of big sounds	●				●	●		200
Reference CS1	75	A moderate performer, with a little coloration and a tendency to lose bass at dimaxes	●				●	●		188
Silvertone Ex-Static	35	Pleasantly unfatiguing and competitively priced cable that lacks detail and insight				●	●	●		160
R SonicLink Silver Pink	35	Dynamically sensitive and muddle-free. We're unsure about the flesh-coloured finish, though...	●				●	●	●	160
R SonicLink Black	49	Nickel-plated copper with a slight dryness in the bass and a hint of treble roll-off don't compromise integration	●				●	●		176



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CONTINUED

CABLES

SPECIFICATIONS

SYMMETRICAL COAXIAL STRANDED SOLID CORE COPPER SILVER DIGI CABLE TYPE ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIGI CABLE TYPE	ISSUE NUMBER
SonicLink Lilac	65	Some dryness can affect transient sounds, though tone is generally good, especially in the bass	●							188
SonicLink Violet	85	Better bass than treble – a little dry in the upper octaves	●							200
Ⓜ Straight Wire Chorus	40	A very confident cable with good bass, though perhaps a shade of treble loss				●	●	●		176
Ⓜ Straight Wire Sonata	80	Tonal balance favours lower frequencies but despite this it's a very listenable cable				●	●	●		188
Straight Wire Encore II	100	Slightly variable bass performance is a weakness in this otherwise capable cable	●							200
Ⓜ Supra EFF-ISL	80	Excellent sound in all areas – nothing to criticise	●				●	●		188
Ⓜ Tara Labs Prism 22	64	Mild tendency to plumminess offsets some hardness in complex music with mixed results				●		●	●	188
Tara Labs Prism 55-i	195	Good with laid-back music, but seems lazy with more exciting material	●				●			200
Ⓜ TCI Viper	55	Fine performance in all areas; just the smallest hint of sibilance. Very good value	●				●	●	●	200
Ⓜ van den Hul PB5	50	A highly neutral cable with fine dynamic and rhythmic performance too – excellent					●	●	●	188
Ⓜ van den Hul Source HB	65	Price for 0.8m. Hybrid carbon-fibre/copper cable that is a paragon of naturalness					●	●	●	160
Ⓜ van den Hul D102 MkIII HB	80	A fine cable, but the competition has crept up and it no longer leads the pack	●				●	●	●	200
DIGITAL INTERCONNECTS (PRICES PER TERMINATED LINEAR METRE)										
Ⓜ Audioquest Digital One	35	A neutral and capable cable that adds little or no character to the sound				●	●	●		E 207
Chord Optlink	40	Beautifully made, but performance is practically indistinguishable from other, cheaper, Toslink leads								O 207
Ⓜ Chord Prodac	50	Price for 0.6m length. Lively detailed treble, drives music along confidently with no hint of fizz				●	●	●		E 131
Ixos 1051-100	39.95	Plenty of bass, and detail seems good, but there's a loss of involvement				●	●	●		E 207
Ⓜ Kimber Kable Opti-link	50	Appears to be a bog-standard PMNA fibre, yet sounds a little brighter and livelier than most								O 108
Moth Leyline Datalink	140	A thin, coaxial version of Leyline Black with a rather hard and unforgiving character. Too expensive				●	●	●		E 108
Ⓜ QED Qunex P75	25	A superbly capable interconnect that's highly detailed and well balanced				●	●	●		E 207
Ⓜ Ross OP004	19.99	Sounds much like most other Toslink leads: slightly lacking detail, but good value								O 207
SonicLink Digital Optical	30	Possibly slightly more detailed than other opticals, but still no match for a decent electrical digital link								O 207
Ⓜ SonicLink Green	60	Spacious, positive and engaging if a bit over-crip at times – very compelling, however				●	●	●	●	E 131
Straight Wire Info-Link	300	A good cable, but bass seems a little light and detail suffers a little at climaxes				●	●	●		E 207
Ⓜ van den Hul Optocoupler	49.95	Noticeably has the edge over other optical leads, but still second best to electrical types								O 207
Ⓜ van den Hul The First	140	Exceptionally natural albeit slightly cautious compared to some. Plenty of subtle information and integration				●	●			E 131
LOUDSPEAKER CABLES (PRICES PER METRE LENGTH)										
ALR Jordan QMM	5	Generally neutral, if sometimes bass-shy, but not very communicative	●							183
Ⓜ Audio Note AN-B	16.50	Well suited to valve systems, elastic bass, methodical but unintrusive and musical					●	●		133
Ⓜ Audio Note AN-L	29.50	Fruity bass and expressive vocal rendition was appreciated by the panel, which was happy to accept its foibles					●	●	●	133
Ⓜ Audio Note AN-SP	150	A calm and civilised presentation, very quiet in the way it reveals subtle low level detail. Great poise and clarity				●		●	●	109
Audioquest F-18	3.60	Slightly lumpy bass and lack of midrange detail: can also be a bit dry	●				●	●		192
Audioquest Type 4	5	Four 18-gauge OFHC copper conductors wound in a Litz-type fashion increases capacitance but restrains 'bite'	●				●	●		109
Audioquest Type 6	9	A very inflexible cable in which the sonic ends don't quite justify the means	●				●	●		183
Ⓜ Audioquest Slate	15	Capable across the board, with just the smallest degree of dryness, but very listenable	●				●	●		203
Ⓜ Bاندridge LC7409	4	Detailed and up-beat cable. A bit too steely for classical strings					●	●	●	157
Ⓜ Cable Talk Talk 3.1	2.25	Quite well-balanced but tends to lose bass lines in complex music				●		●		168
Cable Talk Talk 4.1	4.25	Smooth and cultured sound that lacks fine detail and is a bit too restrained								157
Cable Talk Flat 2	5	Rather unexciting sound, with variable bass and dry voices	●				●	●		203
Cable Talk Concert 2.1	8	Can make stereo images recede, and favours the upper bass	●				●	●		192
DNM LSC350	6.95	Majors on midband and lower treble lucidity at the expense of bass and extreme treble extension					●			168
Ⓜ Chord Company Odyssey	17	Relatively vice-free cable with good detail throughout the range and generally neutral bass	●				●	●		192
- Chord Company Rumour 2	10	Performance is listenable enough but fails to excel in any area	●				●	●		203
Ⓜ DNM LSCB500	12	High impedance can influence the treble response, but this was a winner on sound per pound. Bi-wire					●	●		133
Ⓜ Electrofluidics Monolith 2020	45	Excellent bass extension and very fine performance elsewhere - one of the best cables available all round	●				●	●	●	203
Gale XL189	1	Slightly bright and not too subtle, but a perfectly acceptable cable for any starter system	●				●	●		168
Ⓜ Gale XL315	2	A little lacking in detail but plenty of life and excellent value					●	●	●	157
Ⓜ Gale XL160-2	2.50	Rhythmic and bouncy-sounding bi-wire cable. Can be slightly manipulative					●	●	●	157
Ⓜ Goertz M2	32	Remarkably detailed, smooth, neutral and with excellent bass; check amplifier compatibility	●				●	●		168
Ⓜ Hitachi LC-OFc	7	Very crisp, very clear and very confident. In the right system would be very expensive to better	●				●	●	●	109
Ⓜ Ixos Gamma 6003	2.99	A little midrange dryness, but bass is among the best at this price, strong and consistent	●				●	●	●	203
Ⓜ Ixos Gamma 6006	5	Bass is better than treble, which can become spitty and sibilant – though only slightly	●				●	●	●	192
Ⓜ Kimber 4PR	4.90	Considering the price, this cable's very slight dryness is forgivable when everything else is so right					●	●		192
Ⓜ Kimber 4VS	8.50	A good mix of virtues including particularly fine bass	●				●	●	●	183
Ⓜ Kimber 4TC	18.80	A well-balanced cable with good performance in all areas	●				●	●	●	168
Ⓜ Kimber 8TC	348	Very capable in all areas, particularly good at imaging and with firm bass. Price for 5m terminated pair	●				●	●	●	203
Linn K20	4	Seems to work best with lively, unobtrusive music – can be dry and edgy	●				●	●		183
Naim NAC A5	5.5	A 'dinosaur of a cable', this stiff wire rod doesn't belong outside Naim systems, where it works a treat					●	●		109
Nordost Octava	3	Fair bass but confused treble and some coloration	●				●	●		168
Nordost Flatline Gold II	9.50	Exciting sound but a bit too 'in-yr-face', and bass is not always even					●	●	●	92
Ortofon SPK100	3	Grey-sounding – strips instruments of their natural richness and resonance. A bit bass-shy, too					●	●		133
Ⓜ Ortofon SPK200	4.99	Good strong bass and fair detail, only slightly marred by a little dryness	●				●	●	●	183
Ⓜ Ortofon SPK300	8	Tremendously open and atmospheric, with robust, full-blooded bass – if slightly bright at times	●				●	●	●	133
Precious Metals SL102	10	Unusual construction gives rather strained sound, only really cheering up with simple musical textures	●				●	●		183
Profigold Silverflex LC8258	4	A pretty-looking cable that does little to offend but is let down by some congestion	●				●	●		203
Provire Out of Sight	1.99	Special-purpose cable for laying under carpets etc. Fair sound across the board					●	●		203
Puresonic 7845	1.95	Big, weighty sound – but too messy and bloated for its own good	●				●	●		183
Puresonic 7891	2.85	Chunky cable design; shame about the sound quality	●				●	●		157
QED Qudos	2.25	Despite high-tech design and excellent Air-Loc plugs, its music-making failed to gel					●	●		57
Ⓜ QED Qudos Silver	5	A few minor flaws but overall performance is very assured for this price	●				●	●		192
QED Profile 4x4	9	Good midrange and treble balance, but bass is rather slack and detail not outstanding	●				●	●		168
QED Genesis Silver Spiral	30	Commandable bass, with a little dryness and mildly compromised imaging: good, but not the best at its price	●				●	●		203
SonicLink S300	18	Happiest with simple music; tends to smudge detail in complex pieces	●				●	●		168
Ⓜ SonicLink AST50	1.95	It may look like bell-wire, but AST50 sounds detailed, ordered and balanced					●	●	●	157
Ⓜ SonicLink AST75	2.95	Unusual materials and rather unusual performance too, strong on excitement and with plenty of bass	●				●	●	●	203
Ⓜ SonicLink AST150	3.95	Slightly plummy bass and a useful way of holding musical strands together	●				●	●	●	157
SonicLink AST200x2	5.95	At its best with exciting music, this cable seems shy of subtler details	●				●	●		192
Straight Wire Duo	3	Not so subtle and lacking some detail, but sound is consistent with level and musical style	●				●	●		203
Straight Wire Rhythm	6	Its major flaw seems to be woolly and indistinct bass, which pervades most types of music	●				●	●		192

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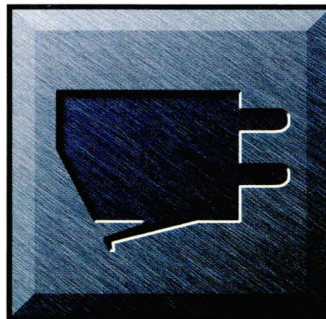
CABLES

STATUS

SPECIFICATIONS

SYMMETRICAL COAXIAL STRANDED SOLID CORE COPPER SILVER DIG CABLE TYPE ISSUE NUMBER

PRODUCT	(£)	COMMENTS	SYMMETRICAL	COAXIAL	STRANDED	SOLID CORE	COPPER	SILVER	DIG CABLE TYPE	ISSUE NUMBER
B Straight Wire Quartet	8	A good all-rounder with full tone, clear detail and natural ambience	●				●			183
B Supra Ply 3.4	6.95	Clean sound which stays together well at high levels, with full bass – perhaps a touch of treble restriction	●				●			183
B Supra Ply 3.4/S	7.95	Good in all areas with rich bass and just a touch of treble roughness	●				●			203
B Tara Labs Klara	2.95	A good budget cable with an even spread of virtues – and very minor vices – across the board	●				●			183
Tara Labs RSC Prime 500	36	More suited to melodious music than anything with bite and drive, with only moderate detail	●				●			203
TCI Python	7.99	No single major sin, but detail is not outstanding and rhythm isn't always completely solid	●				●			203
B Townshend Isolda	50	Superb sound all round, and amplifier compatibility enhanced by included stabilising inductor	●				●			203
van den Hul The Clearwater	7.99	Despite its evocative title, the Clearwater turns out to be a disappointingly murky-sounding cable					●		●	109
van den Hul Royal Jade	10.99	Lots of technology, but sound suffers from dryness and woolly bass	●				●			203
van den Hul CS122 HB	13.99	Good dynamics can make for exciting sound, but fine detail suffers and the treble is often dry	●				●			192
van den Hul The Magnum	40	Touted as vdH's most prestigious twin-lead cable, The Magnum sounds soft and old-fashioned					●		●	109
B van den Hul The Wind	44	'The Wind' kicks up a storm with its lush midrange and bone-crunching bass					●	●	●	109
van den Hul Revolution	80	Silver-plated OFC combined with carbon fibre prompts a sombre character with an easy and relaxed treble					●	●	●	133
MAINS CABLES AND CONDITIONERS										
Clearaudio Accurate Power Gen	1,090	Compact and beautifully finished unit that offers positive sonic benefits that justify the price								206
B Lynwood Electronics Mega Power	295	Reasonable price model that improves focus while producing a sweet, tight and clean bass								206
B PS Audio Power Plant	1,200	Power Plant improves the cleanness and separation of individual voices and instruments, giving an impressive 3-D quality								206
GTA PHY-HP board	299	Oozing style and quality, the board generates an extremely natural and truthful sound								206
B Russ Andrews Kimber/Power Block	350	Improved version that elevates music to a cleaner and more three-dimensional experience with greater stereo imagery								206
Russ Andrews The Purifier	250	More ambitious version of the Silencer that gives a cleaner, quieter background, allowing more low level detail								206
B Russ Andrews Silencer	40	A cost effect solution to noise-free mains supply that reduces 'hash' without losing brilliance and immediacy								206
SonicLink S-Gold mains	225	Delivers a clean incisive sound with excellent detail, clarity and with no increase in noise								206
B Trinchord Research Powerblock500	300	Isolation transformer that bolsters clarity, openness and gives an increased refinement making for a purer and natural sound								206



Cartridges

Cartridges fall into two groups: high output MM (moving magnet) models, capable of working directly into most phono inputs; and generally more expensive low- and very-low-output MC (moving coil) models. MC cartridges usually have better mechanical integrity, tighter tolerances and give better performance. Many amplifiers are no longer equipped with the necessary phono input for a cartridge, and a separate phono stage is necessary. Phono-input equipped valve amps need a transformer to cope with MC cartridges. ■ Even basic high-output MM cartridge designs will benefit from a customised amplifier input load. Consult your dealer for further details on this topic.

KEY TO SPECIFICATIONS

- **MM:** Moving-magnet cartridge with a normal output, suitable for all amplifier phono inputs.
- **MC:** Moving-coil cartridge with a low output, only suitable for high-sensitivity MC amplifier phono inputs.
- **REPLACEABLE STYLUS:** Most MM cartridges have a stylus (needle) that can be removed and replaced when worn out.
- **OUTPUT (mV):** Cartridge output in millivolts.
- **MASS (g):** The mass of your chosen cartridge affects the choice of partnering tonearm. Consult dealers or manufacturers to establish which arms and pickups work well together.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

STATUS

CARTRIDGES

SPECIFICATIONS

REPLACEABLE STYLUS MM MC OUTPUT (mV) MASS (g) ISSUE NUMBER

PRODUCT	(£)	COMMENTS	REPLACEABLE STYLUS	MM	MC	OUTPUT (mV)	MASS (g)	ISSUE NUMBER
E Allaerts MC1B	1,295	Highly capable and entertaining Belgian cartridge that warrants the finest turntable and phono stage you can afford	●			0.5		203
B Audio Technica AT-95E	20	Clear and dynamic, though richly balanced			●	2.8		48
Audio Technica AT-OC9ML	330	A well-finished cartridge with a sound that's smoothly detailed, but also rather unexciting			●	0.4	8	192
B Clearaudio Signature	1,495	A great all-rounder performer with fine dynamic vitality and a seductive midband intimacy			●	0.55	11.5	175
B Denon DL110	70	A fine all-rounder, this high output MC model is likely to perform well			●	1.0	6	48
Denon DL160	90	Although listeners just preferred the 110, its brother here survived lab tests and is still 'thoroughly competent'			●	0.1	6	43
Denon DL103	100	Good performance in bass and good 'life'. Is seriously let down by its spherical stylus which kills subtle detail			●	0.1	6	103
B Denon DL304	200	Uncoloured, detailed, tracks superbly. Top notch altogether, and a bargain at the price			●			103
B Dynavector DV-20X L	299	Articulate-sounding, with impressive treble resolve, though lightweight at times. Needs a high quality turntable and arm			●	0.25	8.6	192
Dynavector Karat 17D2 mk2	450	Clean and controlled sound with taut, tuneful bass. Detailed and musically cogent			●	0.15	5.3	158
B Dynavector XX-1L	998	Very clear, very detailed; a response lift around 20kHz seems to do no harm			●	0.25	12	84
B Dynavector Te-Kaitora	1,698	A real smoothie, but pricey. Worth checking out for its delicate laid-back transparency and low needle-talk			●	0.25	8.5	175
E Dynavector DRT XV-1	2,500	Capable of conjuring one of the most tactile, three dimensional sound stages on the vinyl planet. Extremely entertaining			●	0.3	13	208
B Goldring Elan	19	A lightweight and frisky-sounding MM apparently based on Nagaoka MM4 body		●		5.0	7	67
B Goldring 1012GX	79	Slightly harsh but plenty of life and detail. Some high frequency coloration apparent		●		6.5	7	85
B Goldring 1022GX	99	As with 1012, a touch harsh; detail and transient purity improved		●		6.5	7	85
B Goldring Eroica LX	110	Not the most subtle cartridge in the world: can sound edgy at times, but lively and informative		●		0.5	8	84
Goldring 1042	120	Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though		●		6.5	6	91
Goldring Elite	220	The basics are right, and it will cheerfully tackle any source material, but its sound is not the cleanest		●		0.5	8	103
Goldring Excel VX	525	Good bass drive but dull and imprecise higher up. An old-fashioned sound that falls short of the true high end		●		0.45	8	175
B Grado Prestige Gold	149	Rich sounding with an unusually refined top-end for a moving magnet-type cartridge		●		4	6	158
Grado Reference	995	Loads of tracking headroom but treble is limited. A prospect for mid-oriented valve amp users		●		1.7	6.5	175
B Linn K9	125	Linn improved this model by beefing up the Basik's bodywork and adding a super stylus		●		4.5	5	Col
London Decca Maroon	259	Now manufactured under the London brand name, this Decca cartridge is as iconoclastic as ever		●		5.0	6	67
London Decca S Gold	399	Immediate and detailed, but coloured and nonlinear, with a questionable effect on records		●		5.0	6	84
B Lyra Lydian Beta	599	A thoroughly enjoyable cartridge – smooth, agile and dynamic in character		●		0.5	8	192
B Lyra Lydian	649	Superbly capable all-round musical performer that improves markedly when its body cover is removed		●		0.3	7	158
B Lyra Clavis Da Capo	995	A stable tracker, and one of the finest cartridges we've heard		●		0.1	7	143
Lyra Parnassus D.Ct	1,895	A real little jewel of a cartridge, with many good qualities, but handicapped by a rather too obvious treble peak		●		0.22	10.5	175
B Ortofon 510/P	38	For the price, a good blend of virtues – weight, clarity and neutrality		●		3.0	5	85
Ortofon 520/P	65	Sensitive to load capacitance, but the 520/P has a lively, effervescent sound		●		3.0	5	67

CONTINUED

CARTRIDGES

SPECIFICATIONS

STATUS

PRODUCT	(£)	COMMENTS	REPLACEABLE STYLUS	OUTPUT (mV)	MASS (g)	ISSUE NUMBER
P Ortofon MC3 Turbo	130	The 3 Turbo is bright, cheerful and bouncy, but subtle – take it as it comes	●	3.3	4	103
P Ortofon MC15 Super II	130	A good all-rounder, with outstanding resolution, if slightly bright and close up	●	0.35	7	103
Ortofon MC25E	180	An excellent upgrade for a mid-price turntable	●	0.5	11	139
Ortofon MC25FL	250	A bit too stark and honest, but faithful to what's on the LP	●	0.5	11	139
P Ortofon MC 10 Supreme	300	A full and cultured-sounding cartridge, with collective attributes far outweighing its shortcomings	●	0.5	10.7	192
Ortofon MC30 Supreme	525	Highly detailed and even-sounding cartridge that has a special affinity with female vocal recordings	●	0.5	10.7	158
P Ortofon Rohmann	1,000	A class act in nearly every respect, with fine groove security and a very smooth and even-handed sound	●	0.25	8.5	175
P Ortofon MC3000II	1,100	A real ear-opener. Nothing to criticise anywhere – one of the very best	●	0.12	10	84
Ortofon MC5000	1,500	Limited tracking ability, bright and forward sound, but good stereo	●	0.12	10	91
Rega Bias	39	Difficult to mount in some arms due to its shallow body, but the Bias offers a gentle, refined sound	●	5	4	67
Rega Elys	85	Clearly superior to the Bias, the Elys is more detailed, accurate and convincing	●	5.0	5	67
P Reson Reca	250	If you're after a high quality moving magnet cartridge, they don't get much better than this	●	6.5	6.3	192
P Roksan Corus Black	130	Recognisably related to the Corus Blue, but smoother and more civilised	●	6.5	5	91
P Sumiko Blue Point Special	250	A no-nonsense performer with engaging musical properties – one of the best around for less than £300	●	2.5	9	192
P van den Hul MM-1	250	If woody midrange could be tamed, imaging and security would pull it through	●	5.5	6	103
van den Hul DDT-II	600	Outstanding stereo imaging and neutral balance are appealing, but rhythmically the DDT-II is a bit lazy	●	0.35	7.6	158
P van den Hul MC-10	750	A neutral, balanced performer, gives fine depth and focus and a firm, extended bass	●	0.4	6	60
P van den Hul MC-One	900	This extends all the positive qualities of the 10, but adds greater authority and scale – worth all the extra money	●	0.4	6	60
P van den Hul MC-Two	1,200	MC-Two rewards with a highly detailed yet fluid and musically convincing portrayal	●	0.4	6	72
P van den Hul Frog	1,500	Seems to control/suppress surface noise better than its rivals. This delicate and subtle performer has great charm	●	0.65	7	175
P van den Hul G' hopper III/CLA	2,800	Undoubtedly one of the finest cartridges available. It has tremendous bandwidth, energy and finesse	●	0.4	6	122
P Wilson benesch Matrix	786	Extraordinarily well balanced cartridge: neutral and detailed yet lively and rhythmically assertive	●	0.58	6	158
P Wilson benesch Carbon	1,573	Carbon fibre body contributes to a delightfully clean and open midrange, and a quick, lively and coherent sound	●	0.45	7	175



Cassette Decks

The compact cassette is still the world's most versatile and ubiquitous music storage medium. Cassette decks hook up to the 'tape loop' inputs and outputs offered by most modern amplifiers. It's worth taking care to choose the best tapes for a specific machine. For example, expensive metal tapes will be a wasted investment for a cheap deck. Many better-specified decks have manual or automatic bias adjustment to get the best from specific samples of tape. Twin decks offer the possibility of copying from tape to tape, playing two cassettes sequentially or recording onto two tapes at once. Autoreverse is a useful feature, but uni-directional mechanisms promise better sound. Dolby S is the ultimate noise reduction system, and three-head decks permit record monitoring off-tape.

KEY TO SPECIFICATIONS

- **DOLBY B/C:** The first and second Dolby hiss-killers.
- **DOLBY S:** A desirable derivative of Dolby SR professional noise-reduction.
- **DOLBY HX-PRO:** Extends headroom for cassette recording.
- **3-HEAD:** Permits monitoring off-tape while you're recording.
- **TWIN DECK:** Contains two decks for dubbing and continuous play.
- **AUTOREVERSE:** Automatically plays both sides of the cassette.
- **AUTO CALIBRATION:** The deck will automatically set up bias and EQ for any tape.
- **ADJUSTABLE BIAS:** Permits manual optimisation of tape.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

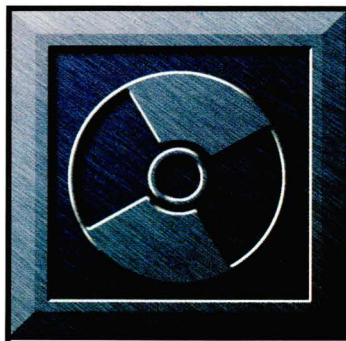
B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

CASSETTE DECKS

SPECIFICATIONS

STATUS

PRODUCT	(£)	COMMENTS	DOLBY C	DOLBY S	DOLBY HX PRO	3-HEAD	TWIN DECK	AUTO REVERSE	AUTO CALIBRATION	ADJUSTABLE BIAS	ISSUE NUMBER
B Aiwa AD-F450	120	Basic but well-designed deck. Astonishing value; only the poor metering gives the game away	●	●	●	●	●	●	●	●	136
B Aiwa AD-WX727	170	High-class twin for those who want bells, whistles – and music	●	●	●	●	●	●	●	●	146
B Denon DRM-550	160	There are some technical limitations, but this remains a fine-sounding deck, and excellent value	●	●	●	●	●	●	●	●	158
Denon DRW-580	200	Twin deck: OK for casual use, but will quickly pall with more quality critical applications	●	●	●	●	●	●	●	●	171
P Denon DRS-640	200	Draw-loading deck, with simple facilities and smooth, well-adjusted sound	●	●	●	●	●	●	●	●	140
P Denon DRM-650S	230	An improvement on predecessors, it offers a wide-ranging, sound. Dolby S is not the best feature	●	●	●	●	●	●	●	●	164
Denon DRM-740	270	Breathed-on DRM-710, with good external treatment, offers good, if somewhat detached sonics	●	●	●	●	●	●	●	●	136
Denon DRS-810	310	Draw-loading deck, carefully designed yet lacking in subtlety on audition	●	●	●	●	●	●	●	●	127
Harman/Kardon TD420	250	Minor inconsistencies detract from a well-conceived, minimum features design	●	●	●	●	●	●	●	●	140
Harman/Kardon TD450	350	Draw loader with poor tape navigation features; good midband but shallow bass	●	●	●	●	●	●	●	●	164
B JVC TD-R472	200	Excellent auto-reverse deck which doesn't suffer the usual disadvantages and is very sharply priced	●	●	●	●	●	●	●	●	158
B JVC TD-V662BK	270	Assured, clean and agile-sounding recorder, if not quite the most refined in its class	●	●	●	●	●	●	●	●	146
JVC TD-W718	300	Twin deck. Good for creative live recording, but no timer standby. Respectable performance	●	●	●	●	●	●	●	●	171
P Kenwood KX-W6080	200	Modestly decent-sounding twin deck, with some transport instability and ragged bass	●	●	●	●	●	●	●	●	171
Marantz SD455	170	Works well as a single deck, especially on replay, but dubbing at high/low speed compromises sound	●	●	●	●	●	●	●	●	184
NAD 613	230	Rough and ready, but enjoyable sound, though marred by mechanical motor noise	●	●	●	●	●	●	●	●	158
NAD 616	300	Twin deck with basic features. No Dolby setting memory, transport is too unstable for audiophile use	●	●	●	●	●	●	●	●	171
Nakamichi DR-10	800	An ergonomic oddity, but one of the last of the great cassette decks. Worth considering against MD	●	●	●	●	●	●	●	●	195
P Onkyo K-611	460	Cute drawer-loading mini-size component with 3 heads and dual capstan transport	●	●	●	●	●	●	●	●	146
P Pioneer CT-S550S	250	Great features, good with cheap low bias tapes, but slightly synthetic sound quality	●	●	●	●	●	●	●	●	164
Pioneer CT-W806DR	300	Had it not been for the iffy transport quality, this sophisticated twin would have been Recommended	●	●	●	●	●	●	●	●	171
P Pioneer CT-S830S	500	High-class mechanism, if lacking in battleship externals, and superb sound	●	●	●	●	●	●	●	●	146
P Sony TC-KE600S	300	Mild setting-up problems notwithstanding, this UK-tweaked design has a smooth, open sound	●	●	●	●	●	●	●	●	158
Teac V-1050	180	One of the cheapest 3-head machines around, but it shows in very 'thick' sound	●	●	●	●	●	●	●	●	184
B Technics RS-AZ6	200	For those who can't afford the RS-AZ7; clarity over the widest bandwidth thanks to AZ thin-film head	●	●	●	●	●	●	●	●	164
B Technics RS-AZ7	270	Thin-film head gives a solid, almost CD-like bass and midrange. A clear advance in state-of-the-art	●	●	●	●	●	●	●	●	158
P Yamaha KX-490	200	Electrifyingly transparent and capable deck whose only flaw is a trace of audible wow and flutter	●	●	●	●	●	●	●	●	158
P Yamaha KX-580SE	250	Subtle, engaging and transparent deck, with a lightweight tonality, but stability and strong detail	●	●	●	●	●	●	●	●	171



CD/DVD PLAYERS

All CD players offer a basic selection of facilities, and some can keep you entertained for hours as you programme in disc names and track orders. All but the excessively inexpensive feature remote control. Most CD players can be upgraded by adding an outboard DAC (see p129). To do this the player needs a digital output of either electrical or optical type. The former is preferable for the ultimate sound. A CD player can be split into two basic components: the disc drive or transport, and a device which converts the disc's digital bitstream into an analogue audio signal. This is called a digital to analogue converter, or DAC. Although most players are contained within a single box, expensive players are usually two-box affairs. The first new DVD players have not excelled with CD software.

B BEST BUY

R RECOMMENDED

E EDITOR'S CHOICE

KEY TO SPECIFICATIONS

- **ELECTRICAL DIGITAL OUTPUT:** For electrical connection to an outboard DAC.
- **AES/EBU ELEC DIG OUTPUT:** Balanced digital output to be used with similarly equipped DACs.
- **OPTICAL DIGITAL OUTPUT:** For optical connection to an outboard DAC.
- **ST OPT DIG OUTPUT:** High-speed optical output to be used with similarly equipped DACs.
- **BAL ANALOGUE OUTPUT:** Balanced analogue output for amplifiers equipped with balanced inputs.
- **HEADPHONE SOCKET:** For 'can' users.
- **VARIABLE OUTPUT:** Remotely adjustable output level (usually non-audiophile).
- **MULTI-DISC:** Equipped with a carousel or multi-tray system for continuous play of multiple discs.
- **DAC TYPE:** BS - Philips Bitstream; MB - multi-bit; Hyb - hybrid of multi-bit and bitstream technologies; 1bit - single bit types eg MASH, bitstream, PWM, etc; CC - constant calibration, DS - delta/sigma
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared. Factsback information page.

CD/DVD PLAYERS

SPECIFICATIONS

STATUS

PRODUCT	(£)	COMMENTS	AES/EBU ELEC DIG OUT	OPTICAL DIG OUT	ST OPT DIG OUT	BAL ANALOGUE OUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	ISSUE NUMBER
B Acurus ACD11	899	First-rate if costly player, which combines a delightful transparency with an uncontrived naturalness	●	●						1bit	166
Acoustic Precision Eikos	1,850	Seriously customised Pioneer with extraordinary resolution and world beating imaging and bass	●	●						1bit	165
Advantage CD15	3,995	A CD player of some stature - what it lacks in dynamics it makes up for in subtlety and flow	●	●						20bit	193
Alchemist Kraken	1,249	Distinctive looking player likely to suit a Alchemist system, but will result in variable results elsewhere		●						24/96	190
R Alchemist Nexus APD32A	597	Refined treble, constrained yet capable bass and a tractive all-round presentation	●							Hyb	169
AMC CD8A	150	Has balanced output, but is otherwise rather grey and unremarkable				●				BS	172
B AMC CD9/DAC8	200	Beer-budget two-box system (player plus DAC) is smooth, attractive and easy on the ear	●			●				CC	179
Anthem CD1	1,595	Unusual combination of high-end player, complete with HDCD, and changer. Good, but noisy	●	●						MB	178
B Arcam Alpha 7SE	300	Sharper, clearer Alpha 7 SE, and more affordable than before	●			●				DS	207
R Arcam Alpha MCD	450	Excellent bass and natural midband, but just a touch of treble dryness, from this very listenable changer	●							MB	178
B Arcam Alpha 8SE	600	Excellent (and very reasonably priced) HDCD-compatible player is a strong all-rounder	●			●				1bit	176
R Arcam Alpha 9	800	Refined, articulate player which employs new DAC technology to great effect	●							Ring	188
R Arcam FMJ CD23	1,100	World class presentation allied with innovative technology to deliver an engaging standard of music making	●			●	●			Ring	206
Audio Analogue Paganini	750	Basically good, but sometimes heavy-handed player	●							24bit	191
Audio Note AN-CD1	600	Easy on the ear, and for a valve player, easy on the pocket, but a bit Radio 2-flavoured	●							Hyb	188
Audio Note AN-CD2	999	High output impedance makes performance unduly system fussy	●							MB	195
AVI S2000MC2	899	A chip off the old block. This model's in-ye-face balance obstructs an otherwise finely detailed sound	●							MB	176
R AVI S2000MC Reference	1,399	Lean, dry, high resolution player, built to outlast most of us. A fine performer in a sympathetic system	●							MB	169
Balanced Audio Tech VK-D5	3,995	A valve-infused player with a big and engaging sound. Lacks a little subtlety	●							18bit	194
Cambridge Audio D100	120	Hard, clanging and coloured sounding, and with suspect control logic				●				DS	200
B Cambridge Audio D500	200	Clean and highly articulate player wears well in extended use	●			●				DS	202
R Copland CDA-266	1,199	Simple yet elegant design is unexpectedly sophisticated under the skin, and effective in execution	●							MB	176
Copland CDA 289	1,898	Beautifully built and musically enjoyable. Lacks some precision, but still among the best below £2,000	●							20bit	194
R Cymbol CDP12	1,299	Clean, detailed and airy HDCD-equipped player with minimalist trappings	●							Hyb	176
R Cyrus dAD1.5	395	Improved dAD1 variant has improved digital filter for a more natural, easy on the ear quality	●							Hyb	191
R Cyrus dAD3 Q24	900	Bold, lean and lively player demands sympathetic system matching	●			●				DS	200
R Denon DCD-435	130	Good low cost player, and a step up from the DCD-425, its predecessor	●							DS	191
R Denon DCD-655	180	Fine, slightly soft-edged budget player, and a good ameliorative for aggressive, edgy systems	●			●				MB	200
Denon DCD-1550AR	350	Disappointing bland and ploddy sound from an immaculately constructed, high-tech player	●			●				MB	179
Denon DCD-1650AR	700	Powerful, authoritative, and well equipped too, but this player sometimes lacks subtlety	●			●				MB	195
Harman/Kardon HK720	230	Sometimes aggressive and ill-disciplined player, but at least it's well built	●							1-bit	202
R Harman/Kardon HD740	300	Powerful but subtle and involving player: welcome back, Harman/Kardon	●			●				DS	191
Harman/Kardon HD760	500	Sophisticated internally, but mildly disappointing when treading the boards in anger	●			●				MB	195
JVC XV-D723GD	500	Convincing DVD-Audio player that is ultimately let down by poor CD performance	●			●	●			MB	206
R Kenwood DVF-3030	180	Solid CD player with straightforward features	●								207
B Kenwood DP-4090	250	Focuses a clear, wide aperture lens on the music - and has CD Text too	●			●				1bit	172
Kenwood DP-5090	300	Disappointing senior brother to the excellent DP-4090, but surface interface is good	●			●				1bit	179
Kenwood DVF-R9030	800	Kenwood's first DVD-A player suffers from a mild compression of dynamics resulting in a polite yet matter of fact sound	●			●	●			MB	206
Marantz CD5000	150	Well equipped budget player sounds thin and rough at times	●							1 bit	202
Marantz CC3000	150	Ragged sounding multidisc player, but it is cheap and well equipped	●							CC	204
B Marantz CD6000	250	Great package with all mod cons, and eminently listenable too	●			●				1-bit	207
B Marantz CD6000 OSE	300	Superbly constructed, slightly emasculated sounding, but smooth and articulate	●			●				1bit	200
R Marantz CD-17KI Sig	1,100	Minor QC problems aside, this is a superbly turned-out machine, but ultimately a little bland	●			●				BS	176
R Marantz CD-17 MkII	800	Sophisticated player with a short but attractive feature set, and a new found bounce in its step	●			●				MB	206
R Marantz CD-7	3,500	A superbly designed CD player, both inside and out. Precise and dramatic in equal measure	●			●				16bit	194
E Marantz SA-1	5,000	The brand's first SACD player is a stunning machine that's equally as strong with conventional CD	●			●				1bit	208
R Meracus Tanto	1,395	Believable tonal colours and textures, refinement takes preference over dynamics - but it's not cheap	●							DS	169
B Meridian 506	1,100	Revised 506 includes MSR remote and a new D/A chip, which makes it livelier and more detailed	●			●				1bit	176
Monrio Asty	695	Well built player has solid, propulsive sound quality that deteriorates towards HF	●							DS	200
Monrio Privilege	995	Costly and well-engineered, but ultimately rather heavy-handed and dull, if refined player	●							MB	166
Musical Fidelity X-RAY	799	Brilliantly packaged and clean but slightly antiseptic sounding player	●							MB	184
B Musical Fidelity A3 CD	800	Excellent player has few faults apart from a slight loss of EHF detail	●			●				DS	200
Myryad T-10	400	Rather ordinary player fails to shine with good music recordings	●							DS	184
Myryad T-20	600	Matter of fact styling and sound quality, a tad bright for some systems	●							DS	195
Myryad MCD500	1,300	Well-built, attractive player, showing much promise, but can be a little heavy-going on audition	●							1bit	176
R NAD C520	170	Significantly improved entry level NAD is smooth and dynamic, if slightly dull	●							DS	202
R NAD 524	250	Clean, clear and essentially musical player in the NAD mould	●							MB	191
NAD 523	250	Lacklustre musical presentation was disappointing on test; so was the absence of a digital output								DS	204

CONTINUED

CD/DVD PLAYERS

SPECIFICATIONS

AE5/EBU ELEC DIG OUT
OPTICAL DIG OUT
ST OPT DIG OUT
BAL ANALOGUE OUT
HEADPHONE SOCKET
VARIABLE OUTPUT
MULTI-DISC
DAC TYPE
ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	AE5/EBU ELEC DIG OUT	OPTICAL DIG OUT	ST OPT DIG OUT	BAL ANALOGUE OUT	HEADPHONE SOCKET	VARIABLE OUTPUT	MULTI-DISC	DAC TYPE	ISSUE NUMBER	
NAD C540	330	Not cheap, and disc handling is pedestrian at best, but the C540 is smooth & elegant with just a hint of aggression	●	●	●	●	●	●	●	DS	200	
R NAD Silverline S500	1,100	It sounds as good as it looks, which is notably refined and easy on the ear	●	●	●	●	●	●	●	MB	195	
Naim CD5	1,125	Smother than the CD3.5 but retaining the Naim character of excellent drive and attention grabbing busyness	●	●	●	●	●	●	●	Hyb	207	
R Naim Audio CD2	2,000	Provides bags of detail with a solid stereo focus but not all the romanticism we know to be possible	●	●	●	●	●	●	●	MB	163	
R Nakamichi MB-10	400	Jewel of a multi-disc player, with crisp sound and superb fuss-free compact packaging	●	●	●	●	●	●	●	DS	204	
E Naim NACDSII/XPS	5,625	Brings you the Naim sound, but for once doesn't have to rely on Naim ancillaries to get the results	●	●	●	●	●	●	●	MB	188	
R Onkyo DX-7222	150	Competitive following recent price cut, and on the whole a strong performer musically	●	●	●	●	●	●	●	BS	200	
Onkyo DX-7511	300	Earthbound mid-price CD player fails to excite	●	●	●	●	●	●	●	1-bit	207	
Parasound C/DP-1000	499	Comes on like a high end player, but ultimately sounds a bit weak and soft-centred	●	●	●	●	●	●	●	Hyb	184	
Philips CD751	150	Inconsistent and occasionally opaque and scrawny sounding cheapie	●	●	●	●	●	●	●	1bit	172	
Pioneer PD-S507	200	Low cost Legato Link implementation sounds gentle but slightly muddled	●	●	●	●	●	●	●	DS	191	
R Pioneer PD-S707	300	Idiosyncratic Legato Link dominated sound, but always subtle and interesting	●	●	●	●	●	●	●	MB	184	
Pioneer PD-F906	350	Interesting appearance and concept, but this changer's sound is lacklustre and ergonomics frustrating	●	●	●	●	●	●	●	1bit	178	
R Pioneer PDS-06	550	Technologically sophisticated. Pioneer's first multi-bit player for years is polished and capable	●	●	●	●	●	●	●	MB	176	
Primare D20	799	Well presented player doesn't quite cut the mustard, though it performs promisingly	●	●	●	●	●	●	●	BS	188	
Revox Exception E426	2,250	Very stylish with a light, agile sound that extends superbly and has fine timing	●	●	●	●	●	●	●	BS	182	
R Roksan Kandy	475	Slightly old-fashioned sound quality player available in various colour schemes	●	●	●	●	●	●	●	DS	200	
R Roksan Caspian	895	Solid, articulate, and fundamentally well-engineered player, but with some subtle low-level limitations	●	●	●	●	●	●	●	Hyb	169	
Rotel RCD-951	300	Disappointing chopped-down RCD-971 – buy the original	●	●	●	●	●	●	●	MB	191	
B Rotel RCD-971	450	Odd disc handling logic, but bold, detailed and refined sound make this a must	●	●	●	●	●	●	●	MB	184	
B Rotel RCD-991	750	Confirms Rotel's status as must watch brand: great stuff	●	●	●	●	●	●	●	MB	195	
Sherwood CD1	1,100	A very neutral, even handed sounding player with a rather flat, lifeless sound. Beautiful construction	●	●	●	●	●	●	●	BS	163	
R Sony CDP-XE330	100	Unrefined, but lively, detailed and highly affordable	●	●	●	●	●	●	●	Pulse	202	
Sony CDP-XE530	140	Well equipped, but raw, scrappy sounding player lacks depth and weight	●	●	●	●	●	●	●	Pulse	200	
Sony CDP-XE510	180	Souped up CDP-XE500 which tells a rather bland and unengaging story	●	●	●	●	●	●	●	1bit	172	
B Sony CDP-XB930E	300	Yet another first rate UK optimised player with all the bells and whistles	●	●	●	●	●	●	●	Pulse	195	
B Sony CDP-X3000ES	500	Shoebbox format player, looks to die for, switchable digital filters to tweak the already excellent sound	●	●	●	●	●	●	●	BS	169	
R Sony SCD-XB940	550	First mainstream SACD player that easily outstrips comparable CD players at this price	●	●	●	●	●	●	●	MB	206	
E Sony SCD-777ES	1,700	Beautifully built SACD player that looks like a bit of a CD player bargain	●	●	●	●	●	●	●	BS	198	
E Sony SCD-1	2,500	The first SACD player sounds fabulous but there's not much competition and limited software as yet	●	●	●	●	●	●	●	BS	194	
T+A CD1210R	1,185	Intriguing player with rather pushy basic sound, but has switchable digital filters	●	●	●	●	●	●	●	DS	188	
Talk Electronics Thunder 1	550	Entry level upgradeable Talk Electronics player sounds slightly muted	●	●	●	●	●	●	●	DS	200	
Talk Electronics Thunder 2	699	Fine player, slightly lacking in dynamics, but readily, if expensively upgradable in various ways	●	●	●	●	●	●	●	1-bit	191	
R Talk Electronics Thunder 3	1,000	Clean, fast, and availability of a complete upgrade path make this a good long term proposition	●	●	●	●	●	●	●	DS	195	
R TAG McLaren CD20R	1,249	Dry and unatmospheric, but plenty of presence – recommended with caution	●	●	●	●	●	●	●	BS	188	
B Teac CDP-3450SE	200	For once a budget player where gadgets take second place to respectable, budget amp-friendly sonics	●	●	●	●	●	●	●	1bit	166	
Teac VRDS-8	600	Superb build quality is matched to good, but not exceptional sound quality	●	●	●	●	●	●	●	MB	184	
Teac VRDS-9	700	Well-presented. This Teac is crisp, yet shallow, and inconsistent in sound quality and partnering skills	●	●	●	●	●	●	●	1bit	176	
Teac VRDS-25x	1,000	Excellent, individualistic player with bold, colourful sound, but test sample had iffy CD-R compatibility	●	●	●	●	●	●	●	MB	195	
Technics SL-PG390	90	It's very cheap. Very, very cheap	●	●	●	●	●	●	●	MASH	202	
Technics SL-P57	200	Strong, but ultimately rather opaque and hard-sounding, high tech CD player	●	●	●	●	●	●	●	MASH	207	
R Technics SL-MC410	250	If you fancy a CD player that holds 111 discs, this one's cheap, pretty capable, and easy to use	●	●	●	●	●	●	●	Hyb	178	
R Technics SL-MC7	300	Maximum storage capacity for a minimum price, and presentable sound too (multidisc)	●	●	●	●	●	●	●	MASH	204	
Thule Spirit CD100	600	Definitely a try before you buy machine, but the bass and mid are excellent	●	●	●	●	●	●	●	DS	188	
Trichord Genesis	549	Breathed-on Pioneer is warm and mellifluous, but ultimately lacks drive and authority	●	●	●	●	●	●	●	Hyb	169	
Trichord Revelation	799	Well-ordered and clean sound that may be a little too refined for some, images well	●	●	●	●	●	●	●	1bit	166	
Tube Technology Fusion MkII	1,350	Improvements over the original model but still remains too inconsistent for its own good	●	●	●	●	●	●	●	MD	206	
Tube Technology Fulcrum	2,800	An imaginative two-box player with a smooth sound that lacks some lustre	●	●	●	●	●	●	●	24bit	194	
Wadia 830	3,000	Envelope busting dynamics, power and imaging in a rather unexciting box (digital volume control)	●	●	●	●	●	●	●	MB	183	
E Wadia 860x	7,450	If you want to discover what CDs are really capable of, this has few peers	●	●	●	●	●	●	●	MB	199	
Yamaha CDX-493	180	Open and lively, but this player is also messy and lacking resolving power	●	●	●	●	●	●	●	Hyb	191	
Yamaha CDX-596	230	Well-priced and attractive-sounding, this player can read CD-RW	●	●	●	●	●	●	●	BS	207	
Yamaha CD-X993	400	A bit of a lush, though the sound is singularly free of grain, and equipment levels are strong	●	●	●	●	●	●	●	BS	184	
YBA Spécial	695	There is nothing here to justify the pricing or the high-end parentage. Avoid	●	●	●	●	●	●	●	MB	195	
R YBA CD1α	3,895	A remarkably fluid and graceful sound – one of the best we've heard below £5,000	●	●	●	●	●	●	●	18bit	194	
TRANSPORTS												
Audio Note CDT Zero	399	Neat shoe box size transport sounds smooth and fluid in the right system. (Tested with DAC Zero)	●	●	●	●	●	●	●		191	
Linn Karik	1,850	Based on early Linn transport, the Karik is dry but very positive, detailed and engrossing	●	●	●	●	●	●	●		144	
Roksan Attessa ATT-DP3	1,295	Not the most detailed or refined but capable of sounding exciting with the right material	●	●	●	●	●	●	●	1bit	162	
Teac VRDS-T1	550	Superb quality engineering is mated to tidy and composed sound. (Tested with D-T1)	●	●	●	●	●	●	●		144	
Theta Carmen	3,299	A well equipped and extremely upgradable CD/DVD transport. Right now, the finest of its type	●	●	●	●	●	●	●		203	
Theta Data Basic II	2,397	Uses a Philips CDM9 Pro mechanism and works a treat with more lively DACs	●	●	●	●	●	●	●		130	
Thorens TCD2000	999	Lively presentation not helped by rather loose bass and splashy treble. (Tested with TDA 2000 DAC)	●	●	●	●	●	●	●		162	
R Trichord Digital Turntable	699	Very detailed, precise, controlled yet involving; a first-rank performer	●	●	●	●	●	●	●		162	
DACS												
Alchemist TS-D-1	300	24/96-equipped DAC sounds tidy but a little shut-in with both 16-bit CDs and 24-bit/96kHz DVDs	●	●	●	●	●	●	●		BS	187
Audio Note DAC Zero	369	Neat valve-equipped DAC sounds smooth and fluid in the right system. (Tested with CDT Zero transport)	●	●	●	●	●	●	●		Hyb	191
Audionote DAC 5	18,500	Astonishingly natural and realistic in the right system, the only problem being the extravagant price	●	●	●	●	●	●	●		Hyb	203
E dCS Delius	5,000	State-of-the-art resolution with considerably greater flexibility than anything else, hard to beat	●	●	●	●	●	●	●		Ring	207
dCS Purcell	3,500	The first upsampler on the market adds significant depth and increased bass resolve with a suitable DAC	●	●	●	●	●	●	●		n/a	207
E Musical Fidelity X-24K	300	24/96 ready with a warm, natural sound and good soundstaging (tested with Pioneer DV-717)	●	●	●	●	●	●	●		MB	187

CONTINUED

CD/DVD PLAYERS

SPECIFICATIONS

ISSUE NUMBER
DAC TYPE
MULTI-DISC OUTPUT
VARIABLE SOCKET
HEADPHONE OUT
BAL ANALOGUE OUT
ST OPT DIG OUT
OPTICAL DIG OUT
AES/EBU ELEC DIG OUT
ELEC DIGITAL OUTPUT

STATUS

PRODUCT	(£)	COMMENTS	●	●	●	●	●	●	●	●
DVD PLAYERS										
R Denon DVD-1500	400	Colourful and engaging (if lightweight) sound, with excellent picture quality	●	●	●	●	●	●	24/96	207
Denon DVD-2500	500	Good picture, but nondescript sound, except when using the digital output at full 24/96 throttle	●	●	●	●	●	●	DS	198
R Denon DVM-3700	1,000	One of the first multi-DVD players, and a fine all rounder, with average to good pictures, and better sound	●	●	●	●	●	●	●	DS 204
F Denon DVD-5000	1,600	The first DVD-V player that ain't bad as a CD player. A fine musical device	●	●	●	●	●	●	BS	187
R Encore DV-450	200	Superb value for money, though mainly of interest to the videophile on a shoestring	●	●	●	●	●	●	24/96	207
Hitachi DVP-505	300	DVD player has rather dark, unexpansive sound, but good picture quality	●	●	●	●	●	●	n/a	207
JVC XV-D701	500	Good video player, but rather undeveloped musically - CD Text is neat, though	●	●	●	●	●	●	DS	198
JVC XV-523	280	Looking impressive on screen, but lacks resolution and consistency when pushed hard	●	●	●	●	●	●	24/96	207
JVC XV-515GD	300	Musically soft as a baby's bottom, and as surprising as yesterday's news	●	●	●	●	●	●	DS	202
JVC XV-D723	500	The first DVD-A player is more of a DVD-V with A added rather than the next generation of hi-fi	●	●	●	●	●	●	24/192	205
Kenwood DVF-R9030	900	Kenwood's entrée into DVD-A is a multi-disc machine with great potential (pre-production)	●	●	●	●	●	●	24/192	206
R Kenwood DVF-9010	1,000	DVD player with brilliant picture and clean, lively sound	●	●	●	●	●	●	24/96	190
NAD T-550	500	Soft-centred but likeable player in the classic NAD mould	●	●	●	●	●	●	DS	202
Nakamichi DVD-10	800	Not the most compelling model in the resurrected Nakamichi line-up	●	●	●	●	●	●	DS	198
Panasonic DVD-RV40	350	Modestly equipped, gives good pictures, but is musically unengaging	●	●	●	●	●	●	24/96	207
Panasonic DVD-A360E	580	Powerful equipment, and unthrottled digital output notwithstanding, sound quality is modest at best	●	●	●	●	●	●	DS	198
B Philips DVP750	400	Clever DVD with CD-R/CD-RW compatibility and surprisingly keen sound	●	●	●	●	●	●	DS	198
B Pioneer DV-525	399	Lean, clean and lively sound quality. CD-R and 24/96 compatible, too	●	●	●	●	●	●	MB	202
B Pioneer DV-626D	450	Superbly equipped, and more than respectable sound quality	●	●	●	●	●	●	DS	198
Philips DVD960	530	DVD-V player has strong sound quality and good, though slightly washed out, pictures	●	●	●	●	●	●	24/96	207
B Pioneer DV-717	550	Superb DVD player with good picture quality and which really knows how to play 24/96 discs	●	●	●	●	●	●	MB	190
R Primare V20	1,000	Elegant and well built DVD performer that possess a strong picture quality and decent CD player	●	●	●	●	●	●	MB	206
Samsung DVD-907	500	DVD player with below average picture, and lacklustre sound quality	●	●	●	●	●	●	24/96	190
Sony DVP-S735D	500	DVD-V player looks great on and off screen, but sounds rather coarse	●	●	●	●	●	●	24/96	207
Sony DVP-CX850D	600	Lacklustre sound quality is a disappointment, but the price is appealing for a 200-disc DVD player	●	●	●	●	●	●	DS	204
R Sony DVP-S7700	950	Powerfully endowed player offers articulate and believable sound	●	●	●	●	●	●	DS	198
R Sony DVP-S325	330	Bare bones DVD with workmanlike sound, although it can sound 'loud'	●	●	●	●	●	●	DS	202
Sharp DV-760	500	Reasonable picture, but sonically brings new meaning to the term rough and ready.	●	●	●	●	●	●	DS	202
Teac DV-1000	400	Blowsy, and occasionally astringent sounding, but otherwise straightforward and reasonably priced	●	●	●	●	●	●	DS	198
Theta DaVID	4,650	A top-notch CD transport, that also plays DVD-Video discs well. Pricey for a DVD transport, but worth it	●	●	●	●	●	●	24/96	191
Toshiba SD-100E	250	Mainstream player offers so-so features, performance and pricing	●	●	●	●	●	●	24/96	207
Toshiba SD-3109	380	Defocused and soft-edged, this is more attractive for its picture than its sound quality.	●	●	●	●	●	●	24/96	202
Toshiba SD9000	800	Costly, high tech player with stunning pictures and crisp, slightly lightweight sound	●	●	●	●	●	●	DS	198
Yamaha DVD-S795	529	Fare price, and an unconstrained digital output, but otherwise unexciting	●	●	●	●	●	●	DS	198

Digital Recorders

Domestic digital recording has been possible since the launch of digital audio tape (DAT) in the '80s. Since then DAT has remained expensive and largely esoteric, favoured only by well-heeled or professional users. Digital Compact Cassette and MiniDisc (MD) were launched in the early '90s but only MD has stayed the course. A little later came domestic CD-Recorders using CD-R discs, while the latest twist is the arrival of re-recordable CDs known as CD-RW discs. The recording quality hierarchy is as follows: DAT, CD-R/CD-RW, MD. MD is probably the most convenient to use, and offers sophisticated editing facilities, while CD-R is ideal for making digital 'clones' of prerecorded CDs. DAT is the medium of choice for high-quality location recording.

KEY TO SPECIFICATIONS

- **FORMAT:** Type of recorder - see left for descriptions.
- **DAC TYPE:** Digital to analogue converter: BS - Philips Bitstream; MB - multibit; Hyb - hybrid of multibit and bitstream; 1bit - single bit types such as MASH, bitstream, PWM etc
- **ADC TYPE:** The analogue to digital converter (ADC) converts sound into digits during live recording. Types of ADC are as per DACs (qv).
- **PORTABLE:** Battery operable, but not necessarily personal-stereo-sized.
- **OPTICAL IN/OUTPUTS:** Digital socketry for optical cable.
- **ELEC IN/OUTPUTS:** Digital socketry for electrical cable.
- **ISSUE NUMBER:** The issue of *H-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **EDITOR'S CHOICE**

DIGITAL RECORDERS

SPECIFICATIONS

ISSUE NUMBER
ELEC IN/OUTPUTS
OPTICAL IN/OUTPUTS
PORTABLE
ADC TYPE
DAC TYPE
FORMAT

STATUS

PRODUCT	(£)	COMMENTS	MD	MB	BS	●	●	●	●	●
MINIDISCS										
Denon DMD-1000	300	A good machine, but it still doesn't manage to shake off the MiniDisc plague of losing the listener's interest	MD	MB	BS	●	●	●	184	
JVC XM-448	220	An hidden keyboard is a great idea, but musically it sounds rather cool and strident	MD	BS	BS	●	●	●	205	
Kenwood DMF-5020	250	it may be high-tech but nothing conceals the caricatured sound	MD	BS	BS	●	●	●	205	
R Kenwood DMF-9020	500	One of the best MD decks yet for sound quality, and the first to make titling a practical proposition	MD	BS	BS	●	●	●	191	
Marantz CM635	500	CD player and MD recorder in one box: a practical idea but sound and features don't really match the asking price	MD	BS	BS	●	●	●	191	
Onkyo MD-121	450	Mid-sized deck that sounds slightly coloured at times, though immediate and lively	MD	BS	BS	●	●	●	177	
R Pioneer MJ-D508	200	Well equipped but musically sleep inducing player that deserves its recommendation due to price	MD	BS	BS	●	●	●	205	
R Pioneer MJ-D707	250	A handy set of features for the price, though sound is not outstanding	MD	BS	BS	●	●	●	191	
Sharp MDR3H	300	Nifty machine combining a 3-disc CD changer with a MD recorder. Sound on both is rather below par, though	MD	BS	BS	●	●	●	184	
R Sony MDS-JB920	300	One of the better MD decks, its sound is neutral and dynamic. European Audio Recorder of the Year '98-'99	MD	BS	BS	●	●	●	184	
B Sony MDS-JA20ES	500	Sound quality about as good as it gets with MD to date, and a very comprehensive features set too	MD	BS	BS	●	●	●	191	
R Sony MDS-JA55ES	650	Powerful demonstration of Sony's proficiency, it delivers the best MD can offer	MD	BS	BS	●	●	●	205	
Teac MD-8	600	Womanlike choice, but sound-wise it is middle ranking, despite the price	MD	BS	BS	●	●	●	205	
Yamaha MDX-793	300	Nice machine to use and has some useful features, but sound quality a little wanting	MD	BS	BS	●	●	●	191	
CD RECORDERS										
JVC XL-R5000	450	Flexible, ratty build, and attractive sound, but it's a little expensive compared to other rivals	CD-R(W)	BS	BS	●	●	●	205	
LG ADR-620	350	A powerfully equipped machine with useful multi-room capabilities, but sound quality is rough and ready	CD-R(W)	BS	BS	●	●	●	205	
Marantz DR700	600	Dearer than Philips and Traxdata equivalents, with apparently only a smarter front panel to show for it	CD-R	BS	BS	●	●	●	191	
R Marantz DR-17	1,500	Highly recommended, but with a jitter problem that, resolved, would improve sound quality	CD-R(W)	BS	BS	●	●	●	205	
R Philips CDR951	380	An improvement on previous models, it delivers the musical goods in some style	CD-R(W)	BS	BS	●	●	●	205	
R Pioneer PDR-509	300	Straightforward design and excellent recording properties that are slightly dulled by the replay chain	CD-R(W)	BS	BS	●	●	●	205	
R Pioneer PDR-W739	400	Flexible multi-disc that has everything including respectable sound and pricing	CD-R(W)	BS	BS	●	●	●	205	
R Pioneer PDR-555RW	480	Competitor to Philips' CDR-880; can't make perfect copies but has the edge in replay and analogue record sound	CD-R(W)	BS	BS	●	●	●	184	
TEAC RW-800	350	Capable recording tool, but a little rough and ready as a player	CD-R(W)	BS	BS	●	●	●	205	
R Traxdata Traxaudio 900	399	Identical to Philips and Marantz models: it makes bit-perfect copies of CDs and has perfectly acceptable replay	CD-R	BS	BS	●	●	●	191	



Headphones

There are several different ways of making a headphone. The most expensive models employ electrostatically-driven diaphragms within an open-backed earcup. Most mid-price designs feature dynamic, moving-coil-driven diaphragms in open, semi-open or closed-back designs. An open-backed headphone can sound remarkably transparent, but also permits the ingress of external noise. Closed-back designs keep out unwanted sound, but may be less comfortable to wear and more coloured. The latest development is the cordless headphone using either infrared light or, more recently, radio waves. Quality is improving, but has yet to match the best corded designs.

KEY TO SPECIFICATIONS

- **TYPE:** Operating principle: D - dynamic; E - electrostatic.
- **SUPRA-AURAL:** Where a flat pad presses on the outer ear.
- **CIRCUMAURAL:** Where the earcup encloses the ear.
- **OPEN BACK:** Offers an open sound but lets in noise.
- **CLOSED BACK:** Keeps out external noise.
- **MASS (g):** Mass in grams offered to the headphone amplifier. Many headphones offer a significantly higher value than loudspeakers, for example, but this does not mean they will be incompatible with the majority of amplifiers.
- **IMPEDANCE (Ω):** Load offered to the headphone amplifier.
- **3.5MM JACK ADAPTOR:** Compatible with mini-jacked components, eg personal stereos.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

HEADPHONES

SPECIFICATIONS

3.5mm JACK ADAPTOR
ISSUE NUMBER
IMPEDANCE (Ω)
MASS (g)
CLOSED BACK
OPEN BACK
CIRCUMAURAL
SUPRA-AURAL
TYPE

STATUS

PRODUCT	(E)	COMMENTS											
R AKG K100	36	Leather clad groover with bags of power and clarity, for a respectable asking price	D	●				190	100	●	205		
AKG 301	70	Big 'phones with even and detailed sound but lacks sufficient bass weight	D		●	●		230	100	●	194		
AKG K 240 DF	100	Inoffensive 'phones that are very laid back, if lacking in grunt	D		●	●		240	600	●	186		
R AKG K1000	700	One of the best dynamics on the market, hooks directly into speaker outputs	D		●	●		270	120	●	99		
R Audio Technica ATH910PRO	80	The closed back 910s are an improvement on the 909s, with a nice rhythmic quality rarely found	D	●			●	280	40	●	55		
R Audio Technica ATH-D40fs	100	Detailed and involving sound with a professional 'studio' quality appeal	D		●		●	250	66	●	194		
R Audio Technica ATH-M40	120	Incredible detail and honesty from these classically designed studio 'phone	D		●	●		250	60	●	186		
Beyer DT311	50	Uncharacteristically tight, unrefined sound quality from this otherwise well engineered 'phone	D		●		●	124	40	●	133		
Beyer DT411	63	A reasonable but not very thrilling headphone that doesn't really offer enough at the price	D		●		●	120	250	●	111		
Beyer DT331	65	Clear and extremely detailed sound with rather thin bass	D		●	●		210	40	●	194		
Beyer DT431	81	Nice looking 'phones that may not be the best players on the field, but will always give 100 per cent	D		●	●		210	40	●	186		
Beyer DT531	105	Average performer from an established player. Lacks punch and bite	D		●	●		245	250	●	205		
R Beyer DT511	106	Superb midband clarity and speed slightly at odds with soft bass. Even so, high tingle factor	D		●	●		200	250	●	172		
B Beyer DT831	140	These provide silky, smooth textures in abundance and we're not just talking about the velvet ear pads	D		●	1/2		295	250	●	186		
Beyer DT100	160	Rugged, modular professional design, but bass is woolly and treble lacks detail	D		●		●	350	600	●	157		
Denon AH-D550	80	A competent 'phone with integrity, but little panache or charisma. Hard headband causes brain strain	D		●		●	200	35	●	157		
Denon AH-D750	130	Loud and gutsy, meaty bass, good with rock and dance. Can sound thick and clumsy	D		●		●	250	30	●	172		
Grado SR-40	45	Cheap and nasty appearance largely redeemed by cheerful, up-beat sound. Very comfortable	D		●		●	120	32	●	172		
B Grado SR-60	79	For sheer musical enjoyment these are hard to beat. Retro styling may not be to everyone's taste	D		●		●	200	32	●	194		
Grado SR-80	100	Open and dynamic with pedantically open mid-band. Crude physical design, rough frequency extremes	D		●		●	60	8	●	157		
R Grado SR-125	150	What these 'phones lack in style they make up for ten-fold in musical quality	D	●		●		200	32	●	186		
R Grado SR-225	200	Warm, darkly-coloured tonally and ultimately lacking in clarity, but true to the spirit of the music	D		●			200	32	●	163		
Grado SR-325	300	Elegant sound across the frequency spectrum; let down by old fashioned ear-piece design	D		●		●	200	32	●	205		
B Jecklin Float Model 1	79	While very unusual in appearance, the Floats give remarkable sound quality and openness	D		●	●		400	200	●	55		
JVC HA-W60	49	Remarkable lack of interference and hiss ameliorates adequate sound of this cordless design	D		●		●	165	1/R	●	172		
R JVC HA-W200RF	75	Distinct lack of hiss from these FM cordless 'phones ensures that detail and depth are easily heard	D		●		●	280	20,000	●	186		
R JVC HA-DX3	200	Great headphone with a rich bass, careful mid-range and high comfort factor	D		●		●	340	90	●	205		
Koss TD/80	50	Oodles of bass but with a recessed midband; tiresome on the head with prolonged wearing	D		●		●	250	60	●	194		
Koss R/100	100	Rather cheap looking 'phones that supply good detail but are severely lacking in midrange excitement	D		●		●	215	60	●	186		
Precide Ergo Model 2	140	Still has much of the spaciousness of the Float from which it is derived, but coarse mid/top	D				●	380	100	●	163		
Philips HP910	80	Ergonomically good but suffers from a muffled mid-range and over excited bass	D		●	●		247	32	●	205		
Sennheiser IS 380	55	As close as you'll get to real hi-fi with infra-red phones at this price. Inevitable hiss spoils the illusion	D		●		●	192	1/R	●	172		
R Sennheiser HD 570 SympH	90	Comfortable, light-weight 'phones with a detailed and open sound but lacks bass depth on weightier music	D		●	●		210	64	●	194		
R Sennheiser HD 545	125	Fine all-rounder that takes all styles of music in its stride. Ear-clamping headband	D		●	●		255	150	●	172		
B Sennheiser HD 565 Ovation	150	Wide bandwidth design which is refined, expressive and extremely comfortable	D		●	●		255	150	●	157		
Sennheiser HD590	160	Assured and confident player with very low colouration and great comfort	D		●		●	270	120	●	205		
Sennheiser HE 60/HEV70/UK	998	Very nearly a superb electrostatic, with a pure midband, but top end is sibilant and edgy	E		●	●		260	N/A	●	163		
Sony MDR-605LP	50	Funky looking headphones that have a very bold, but tiring sound, with coloured bass	D		●	●		145	40	●	186		
Sony MDR-V700DJ	100	Great looking fold-away 'phones with exceptional build quality. Kickin' bass	D		●		●	300	24	●	194		
B Sony MDR-CD1700	200	Astonishingly detailed, uncoloured and free of the usual artefacts from a sealed back headphone	D		●		●	325	32	●	163		
Sony MDR-CD	2000	200 Large pads make for sweaty listening. Pure mid-tones, but weightless bass	D		●	●		300	32	●	205		
Sony MDR-F1	100	Natural, easy-going sound teamed with great looks and comfort. Shame about the lightweight bass	D		●	●		300	12	●	172		
R Technics RP-F800	50	Comfortable budget model that sounds sublime with great dynamics	D		●		●	160	40	●	205		
Technics RP-DJ1200	130	Functional design with head-pulping bass and muggy tonal balance. Good job they're sweat-proof	D		●		●	230	32	●	172		
R Stax System II	400	Luxury option at its price, but the sound delivery is five star quality all the way	E		●	●		295	50	●	205		
B Stax Lambda Nova Basic	395	Refined, articulate, yet with real presence - and a notable bargain by electrostatic standards	E		●	●		347	N/A	●	163		
Vivanco SR322	30	Weak design and uncomfortable, but redeems itself with substantial sound quality	D		●		●	248	32	●	205		
Vivanco Cyberwave FMH3000	40	The only cordless 'phone to offer genuine walkabout freedom, but sounds like a cheap FM tuner	D		●		●	210	FM	●	172		
Vivanco IR5800	50	Consistently musical infra-red design. Doesn't reach for sonic heights so hiss can be forgiven	D		●	1/2		226	1/R	●	172		
R Vivanco SR650	50	Unusually comfortable 'phone with excellent detail resolution but aggressive	D	●		●		175		●	157		
B Vivanco SR750	60	Cossetting physical design, attractive sound, though suffers overhang and lacks ultimate dynamics	D		●		●	188		●	157		
R Vivanco SR 950	80	Cuddly feel and sound make these an enjoyable pair of 'phones	D		●			252	32	●	194		
Vivanco FM7980	80	A fair amount of whine and crackle detracts from 'phones which are otherwise very listenable	D		●		●	280	9,000	●	186		
Vivanco FM8180	99	Well thought-out features and a better than average sound are, at times, marred by intrusive hiss	D		●		●	240	9,000	●	186		



Loudspeakers

As the last link in the hi-fi chain, loudspeakers are at the mercy of incoming signals. Nevertheless, distortions introduced by loudspeakers tend to be the most obvious. Inside the average loudspeaker is a simple electrical circuit (the crossover) which splits the incoming, full-frequency-range signal for the specific drive units to handle: highs to the 'tweeter', lows to the 'woofer'. For any speaker, designers must balance the 'sensitivity' of the loudspeaker (how loud it goes for a given electrical input) against bass extension (how low it goes). Subwoofers augment bass and are either passive (unamplified) or, preferably, active (self-amplified). Our 'bass from' figures are based on measurements in a particular room therefore results will vary in different environments.

KEY TO SPECIFICATIONS

- SIZE WxHxD (cm):** Width by height by depth in centimetres.
- FLOORSTANDER:** Requires no stand support.
- SENSITIVITY (dB/W):** How much sound results for a given electrical input – the higher the figure, the louder the speaker. An 'A' indicates active operation.
- IMPEDANCE (Ω):** Impedance, measured in Ohms, indicates how much resistance the speaker presents to an amplifier. As impedance decreases, demands on an amplifier increase.
- BASS FROM (Hz):** The lowest frequency that a speaker can reproduce effectively.
- FREE SPACE:** Speakers which should not sit close to walls.
- CLOSE TO WALL:** Speakers which should sit between 3 and 12cm from the rear wall.
- ISSUE NUMBER:** The issue of Hi-Fi Choice in which an original review appeared.

B BEST BUY **R RECOMMENDED** **E EDITOR'S CHOICE**

LOUDSPEAKERS

SPECIFICATIONS

SIZE WxHxD (CM) FLOORSTANDER SENSITIVITY (dB/W) IMPEDANCE (Ω) BASS FROM (HZ) FREE SPACE CLOSE TO WALL ISSUE NUMBER

STATUS

PRODUCT	(E)	COMMENTS	SIZE WxHxD (CM)	FLOORSTANDER	SENSITIVITY (dB/W)	IMPEDANCE (Ω)	BASS FROM (HZ)	FREE SPACE	CLOSE TO WALL	ISSUE NUMBER
Acoustic Energy Aegis Centre	140	Good value centre-front speaker but a tad shut in and with a slightly obvious top end (price per speaker)	46,17,20		89	5	50	●	●	198
Acoustic Energy Aegis One	150	At a new low price, this has a very natural and transparent midband, erring a little on the dull side	19,36,5,24		87	6	40	●	●	187
Acoustic Energy Aegis Two	250	Floorstanding variation on the Aegis One theme, with a neutral, even and detailed if slightly shiny sound	19,87,24	●	89	8	40	●	●	201
Acoustic Energy Aegis Three	350	High value floorstander has deep and even bass and a smooth neutrality thereafter	19,90,25	●	90	5	22	●	●	198
Acoustic Energy AE120SE	500	Attractive styling and good sonic headroom, but a heavy, uneven overall balance, and a difficult amp load	18,97,28	●	89.5	10	25	●	●	199
Acoustic Energy AE520	1,000	Could be more neutral, but high-class build is reflected in a high-class sound. Very elegant too	21,98,30	●	91	3	25	●	●	190
ALR Entry 2	250	Metal cone stand-mount has a generous performance envelope, but sound quality was controversial	20,33,29		90	4	22	●	●	201
ALR Jordan Note 7	2,500	A beguiling Anglo-German collaboration delivers metal-cone precision with fine dynamic range	25,107,32	●	92	4	25	●	●	196
AR 15	275	Neat and chunky wall/stand-mount certainly knows how to rock and roll, less convincing on the delicate stuff	22,37,22		90	4	45	●	●	201
ATC SCM10	1,000	A compact speaker with good transparency but lightweight bass	18,38,25.5		80	8	65	●	●	192
ATC SCM70ASL	10,500	Stylish aluminium casework disguises dynamic grip, tracking and precision that equals the very best	127,40,46	●	A	A	20	●	●	205
Audio Gem Emerald	540	Pretty, compact floorstander with lively if lightweight sound	18,94,21	●	87	6	40	●	●	164
Audio Note AN-E/D	1,520	This classic large stand-mount might have throwback aesthetics, but it delivers an exceptional allround sound	36,79,28		92	4	20	●	●	204
Audio Physic Tempo	1,999	Tall and unusually-styled floorstander has stunning stereo but suspect bass tuning	22,107,47	●	88	8	28	●	●	143
Audiovector C2	799	Elegant two-and-a-half-way has a big, full bandwidth sound, but midband seemed a little underdeveloped	19,106,27	●	90	4	20	●	●	190
Audiovector M2	1,399	High-class, smooth and slightly laid-back performer has driving bass. It's upgradable, too	20,102,30	●	89	4	22	●	●	180
AVI NuNeutron	500	A smooth and subtle though pricey sub-miniature, albeit with the inevitable limitations of the breed	14,27,23		86	4	50	●	●	190
AVI Positron	899	This 'mini-floorstander' is capable of great precision and delicacy, but in a rather small-scale way	175,74,24.5	●	85	6	40	●	●	174
B&W 601 S2	200	A smooth and sophisticated stand-mount combines good drive with fine neutrality	20,5,36,23		89	4	30	●	●	207
B&W 602 S2	300	Large stand-mount has fine dynamic literacy and good communication skills at a very competitive price	23,5,49,29		90	5	28	●	●	201
B&W LCR6	349	Large, gutsy standmount intended for all-round AV use delivers fine performance as a stereo pair too	20,5,55,32		90	5	20	●	●	198
B&W 603 S2	550	Capable of being driven seriously loud, but the cautious balance seems less happy playing at low levels	23,5,87,29		91	4	22	●	●	193
B&W CDM-INT	750	An uncommonly stylish and sonically self-effacing stand-mount that should be very easy to live with	22,40,29		89	7	30	●	●	208
B&W CDM-7NT	1,250	A very classy floorstander, in sound as well as looks, with fine bass drive, authority and overall neutrality	22,95,29	●	90	6	20	●	●	208
B&W Nautilus 805	1,400	A small-sounding loudspeaker dynamically, but very stylish, clean and 'unboxy', delivering loads of detail	24,42,31		89	12	28	●	●	199
B&W Nautilus 804	2,500	The prettiest Nautilus has tremendous clarity and imaging but lacks the welly of bigger models	24,101,5,24.5	●	89	8	38	●	●	200
B&W Nautilus 802	6,000	Outstanding example of the high-tech speaker builder's art, needs real power but gives real sound	39,11,55	●	91	8	34	●	●	183
B&W Nautilus 801	8,500	The 801 is a magnificent loudspeaker in nearly every respect, but it is one that likes to play loud	52,11,69	●	91	8	34	●	●	186
Blueroom Minipod	249	The Minipod can show its competitors a thing or two about freedom from boxiness and looks fab	18,34,17		91	4	50	●	●	193
BC Acoustique Araxe	1,300	Neat compact floorstander is a very lively communicator, if a little short of deep bass grunt	21,92,21-30	●	94	3	40	●	●	204
Cabassee Farella 400	950	Exciting but very upfront-and-in-her-face sound. High sensitivity, fine build and good dynamic drive	26,92,32	●	92	5	28	●	●	180
Carlsson OA52.2	1,500	Ultra-discreet design integrates cleverly with the listening room. Impressively unboxy, but sounds a bit thin	41,54,37	●	90	8	20	●	●	195
Castle Keep	250	Substantial centre-front speaker based on Harlech drivers but with rather brighter voicing	48,17,27-29		88	8	45	●	●	198
Castle Richmond	250	Tiny real-wood miniature has a lightweight but very coherent sound, a bit in-her-face but plenty of fun	17,33,20		90	5	50	●	●	201
Castle Inversion 15	425	This striking looking standmount is a good all-rounder, commendably free from boxiness	19-22,42,25		91	4	30	●	●	193
Castle Kendal	500	A beautifully finished compact floorstander with a decidedly forward but communicative sound	17,76,20	●	86	6	45	●	●	177
Castle Severn 2SE	700	Pretty little floorstander is lively and communicative, if a little coloured in the voice band	21,84,24	●	88	6	28	●	●	204
Castle Harlech	880	Handsome big-sounding floorstander, great value and dynamic midrange	20,96,33	●	88	8	28	●	●	160
Castle Inversion 100	1,975	Large semi-omni design with gorgeous Art Deco styling, sounds open but bass alignment is ill-tuned	26,5,111,45	●	91	8	20	●	●	195
Celestion 12i	119	Not without virtue, but the relentless enthusiasm and mid-band colorations can become wearing	19,31,21		88	6	45	●	●	179
Celestion 23i	300	Cosmetically flawed, but the bottom end has fine get-up-and-go, and works well with dance tracks	24,86,27	●	89	6	30	●	●	177
Celestion A Compact	600	Provided the room isn't too large and your tastes not too heavy, this is a charming little number	17,24,21		90	3	45	●	●	193
Celestion A1	899	Rich, warm and laid-back, but a true quality sound; lovely build	24,41,35		88	6	25	●	●	164
Celestion A2	1,500	Full-scale, big sound from ultra-elegant floorstander. Smooth and slightly laid back presentation	24,93,39	●	89	6	22	●	●	180
Chario Syntar 100	249	Pretty with a pleasantly easygoing balance, but not the most communicative or exciting sound around	18,32,27		87	6	45	●	●	170
Chario Hiper 1000	300	Classy looking standmount has a sweet, easygoing sound with fine midband voicing	18,35,28		87	4	45	●	●	187
Chario Constellation Lynx	550	Beautiful near-miniature is let down by a midband too laid back for its own good	20,36,26		87	3	40	●	●	190
Chario Academy Millennium 2	2,100	Price includes stands. A showy speaker that lives up to its own hype	22,53,35		90	4	55	●	●	190
Dali 606	400	A big bruiser at a tempting price. Sounds refined and polite, but also packs some punch	22,97,32	●	91	4	25	●	●	174
Dali Royal Mnuet MkII	400	Classy sub-miniature with a beautiful box and fine ingredients, but a little lacking in subtlety and excitement	16,26,18		87	3	50	●	●	190
Dali Evidence 870	1,300	A real heavyweight, sonically and physically, and good for movies as well as music	24,5,106,36	●	93	2.5	20	●	●	204
Definitive Technology CLR2002	595	Pricey, but undoubtedly one of the better centre-front speakers around, with fine timing and open voicing	55,5,175,31		90	4	40	●	●	198
Definitive Technology BP2X	595	Pricey but effective bi-polar surround speaker, with unusually high sensitivity	23,37,15		94	4	120	●	●	198
Definitive Technology BP2004	1,700	Pricey bi-polar floorstander has a fine midband, let down by its built-in powered subwoofer	19,104,31	●	91	5	28	●	●	198
Dynaudio Audience 5	400	Follows the Dynaudio tradition for fine midband transparency, but the overall timbre is a bit thin	20,31,26		85	4	40	●	●	177
Dynaudio Audience 40	400	Classy engineering content creates a winning combination of neutrality, dynamic range and involvement	17,28,25		87	4	40	●	●	190
Dynaudio LR/C 120	439	Slim centre and front standmount, has an evenhanded but rather laid back balance but lacks drive	16,5,57,31		89	5	25	●	●	198
Dynaudio Audience 50	577	Understated in looks and finish, this compact stand-mount can mix it with floorstanders at more than twice the price	20,33,25		88	4	30	●	●	204
Dynaudio Audience 70	1,100	A highly competent and neutral speaker, but pricey for vinyl finish, and doesn't quite drag you into the music	20,5,93,25	●	88	6	20	●	●	199
Dynaudio Contour 1.8 MkII	1,842	Wonderful voice-band delicacy and loads of deep bass from a very elegant and compact box	21,95,29	●	85	4	20	●	●	167
Elac CL102 II	599	Chunky floorstander with dassy drivers has a neutral, slightly 'shiny' character, and could have more punch	20,95,28	●	88	9	23	●	●	199
Elac CL 310i Jet	800	It's pricey, and you can buy better performance for the money. Small speaker, good sound	12,3,20,8,28.2		86	4	42	●	●	191
Eltax Liberty 3+	150	Bright, bassy, laid back and attractively evenhanded, but dynamically challenged. Big box for your dosh	20,5,38,34		86	4	25	●	●	187
Eltax Linear Response	249	A curiously dumpy shape, but smooth, laid-back performer is easy on the ears, with fine tonal accuracy	25,35,32		85	4	40	●	●	177
Eltax Chroma Front	300	Gorgeous shiny styling package at an ultra-competitive price, suffers from an excess of rather flabby bass	19,98,28	●	87	4	25	●	●	201

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LOUDSPEAKERS

SPECIFICATIONS

SIZE WxHxD (CM) SENSITIVITY (db/W) IMPEDANCE (Ω) BASS FROM (HZ) CLOSE TO WALL ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	SIZE WxHxD (CM)	SENSITIVITY (db/W)	IMPEDANCE (Ω)	BASS FROM (HZ)	CLOSE TO WALL	ISSUE NUMBER	
Energy e:XL 25	400	Neat slimline design delivers a fine all round performance for the price, but could sound smoother	15,87,31	●	90	4	25	●	201
Epos ES12	499	High quality luxury standmount has great midband and stereo imaging	20,38,25	●	85	8	45	●	160
Epos ES25	1,655	Handsome floorstander with a rather uneven and bass heavy balance	24,90,35	●	88	6	22	●	143
Gale 2i	140	Unspectacular sound and appearance fail to help this solid little miniature stand out from the crowd	22,40,27	●	88	7	40	●	170
Heybrook Prima 2	159	Great openness, speed and timing. Sounds fresh and vital, though sometimes lacks scale and weight	20,29,18	●	87	6	50	●	179
Heybrook HB1	180	Good value but an uneven performer, the HB1 provides plenty of fun with the volume turned well up	21,38,25	●	88	3	50	●	207
Heybrook Heylette	200	Attractive traditional-style near-miniature with classy main driver now has fine overall balance to match	19,5,30,22	●	88	4	45	●	187
Heybrook Optima	259	A dumpy ugly duckling with a heart of gold. Deserves a better tweeter, but communicates well	22,88,29	●	94	4	30	●	193
Heybrook Heylios	269	Classically styled stand-mount has a fine balance of smoothness and dynamics, plus real wood veneer	23,5,36,27	●	89	6	25	●	201
Heybrook Ultima	649	Has the bass wallop to justify its dual hi-fi/home cinema roles, but doesn't excite	22,97,29	●	89	6	45	●	174
Heybrook Duet	750	Looks slightly old-fashioned, sounds a bit coloured but its fine timing and liveliness serve music well	23,43,30	●	88	11	27	●	199
Heybrook Octet	1,800	Good-looking but pricey floorstander with novel drivers and a fine ceramic-enclosure midband	24,97,31	●	90	6	25	●	180
Indigo Three	500	Cute 'n' chunky standmount is an entertaining communicator. Great fun, despite some sonic weirdness	23,30,5,32	●	86	17	24	●	199
Infinity Delta 60	700	Striking and massive floorstander, lots of speaker for the price, but seems a victim of its own complexity	16-29,115,41	●	90	4	25	●	183
Infinity Kappa 70	795	Fine material value. Sonically big, smooth and even, but lacking in coherence and dynamics	16-26,96,27	●	87	4	25	●	204
Jamo E800	200	Nicely voiced, open midband but bottom end is a bit strong and amorphous	17,5,33,29	●	87	3	30	●	207
Jamo BX100A	350	Offering a cracking output for their size, these rock boxes can be a bit bright but have decent bass	31,5,54,28	●	91	8	40	●	155
Jamo Classic 8	400	A lot of speaker for the money; good when playing quietly, but boom'n'tizz character sounded crude	22,90,29	●	90	4	28	●	152
Jamo Cornet 195	350	Loads of bass, should have plenty of yooof-appeal – it looks the business, and is priced attractively	20,5,91,31	●	90	3	26	●	183
Jamo 477A	500	Very prettily styled, but build and sound quality are disappointing at the price	19,77,28	●	88	4	40	●	138
Jamo 507A	700	Imaginative styling keeps the front view super slim yet still it packs a punch. Glass top is a nice touch	22,94,37	●	88	3	40	●	174
JBL LX2	250	Invigorating, if a touch crude, this good-hearted speaker reproduces music with enthusiasm	22,40,27	●	87	8	40	●	170
JBL T1200	400	Very substantial standmount knows how to rock and roll, but can sound uncouth on more delicate material	21,41,30	●	92	5	40	●	193
JBL L20	700	Pricey, heavy and a bit laid-back, but this is a fine rock'n'roller which is dynamic and communicative	26,42,28	●	86	8	30	●	138
JBL SVA1500	700	A distinctive Pro-style bi-radial horn tweeter, with a fun sound, enlivened by a juicy bass thump	17,5,51,31	●	86	8	40	●	174
JBL L40	1,000	Classic, large, three-way standmount is full of vim and vigour, with a superb sense of balance	30,65,31	●	88	4	23	●	167
JBL 4312 II	1,000	Crude but startlingly effective dynamics. The original party animal knows just how to rock'n'roll	36,60,30	●	94	4	25	●	190
JBL SVA 2100	1,250	Monstrously large and brutish styling, goes very loud as well as deep. Fine focus but some boxiness	37,114,52	●	91	8	<20	●	180
JBL L90	1,500	A classic monitor which communicates with gusto and enthusiasm, though it can sound a bit crude	24,94,35	●	91	6	23	●	143
JBL LX70	550	Bassmeister supreme, shame the rest doesn't match up. Fine sensitivity but an itchy, scratchy treble	26,5,94,30	●	91	4	33	●	183
JMLab Tantal 507	295	Competent all-rounder, this compact standmount has a good heart and sweet treble, but sounds a bit small	21,38,27	●	93	4	40	●	193
JMLab Tantal 515	495	Lively and open if bright. Sound is entertaining and informative, but presentation is nondescript	20,94,26	●	92	5	32	●	183
JMLab Cobalt 815	999	Hefty real-wood floorstander has a slight 'boom'n'tizz' character but delivers big speaker grip and dynamics	22,100,31	●	90.5	9.5	22	●	199
JMLab Electra 905	1,200	Compact but massively engineered, delivers a very classy sound with exceptional dynamic range	23,5,47,28	●	90	4	40	●	204
JMLab Spectral 909.1	1,375	Multi-driver array in a large and very substantial enclosure. Good scale but lacks delicacy and sweetness	27,107,35	●	90	4	20	●	180
JMLab Electra 915	1,795	Fine headroom and bass, and classy engineering too, but also a tricky amp load which lacks delicacy	26,5,106,36	●	92	4	20	●	195
JMLab Mezzo Utopia	7,250	Looks good and sounds even better. A genuinely big speaker with fantastic coherence	35,115,47	●	92	4	30	●	186
JPW Mini Monitor	60	Ultra-cheap miniature works well in a limited way	18,27,17,5	●	86	8	50	●	156
JPW Gold Monitor	80	More informative than Mini Monitor – but fiercer, too	18,27,17,5	●	86	8	50	●	156
JPW ML510	130	Lots of good quality speaker for the price, but not an ideal match for cheap budget components	20,34,22	●	88	5	50	●	169
JPW ML910	330	Loads of speaker for the money, plenty of headroom and loudness capability, but sounds dull	23,104,30	●	91	4	43	●	183
JPW ML1010	400	A seriously substantial speaker for the price, and an obvious choice for those who like their music loud	22,5,115,40	●	91	6	25	●	170
JPW Ruby 1	400	Very pretty but pricey luxury metal-cone miniature has good if slightly edgy balance	19,32,21	●	87	6	55	●	139
JPW Ruby 4	1,000	Twin metal-cone main drivers improve the dynamic performance and bass extension, with little sacrifice	22,94,26	●	88	8	25	●	174
KEF Cresta 2	149	A good looking/value package but sonically disappointing, and no match for the Q15	20,5,37,24	●	91	4	40	●	195
KEF Q15.2	200	A vigorous and entertaining compact speaker that remains particularly well aligned for close-to-wall siting	20,5,31,27	●	89	3	30	●	207
KEF RDM Three	1,500	Definitely a speaker aimed at long-term satisfaction rather than immediate impressiveness. Nice	24,100,27	●	90	4	40	●	189
KEF Reference Model 2	1,599	Classy, large floorstander that has massive headroom and clean mid-to-treble, but limited deep bass	23,103,34	●	89	4	30	●	167
Keswick Audio Aria II	379	Confident and dynamic sound, if a little crude and shut in	21,42,24	●	89	8	20	●	148
Keswick Audio Torino	999	Good value, lively contender with distinctive styling. Goes loud and deep but could be smoother	18-26, 93,28	●	90	4	20	●	167
Linn Kan	295	Great bass discrimination from size, ensuring a very informative, if slightly shut-in experience	19,31,19	●	86	4	45	●	187
Linn Keilidh Passive	750	Stunning timing and coherence, awesome bass drive	20,83,28	●	87	4	22	●	138
Living Voice Auditorium	1,500	Pretty, compact floorstander has wonderful coherence, high sensitivity and fine dynamic integrity	21,5,98,29	●	91	4	25	●	180
Living Voice Avatar OBX-R	4,000	Discreet but extremely fine design with external crossover and an affinity with valves	21,5,104,27	●	89	8	45	●	196
Magnat Vintage 320	350	Loads of speaker for your money, but the sound is thick, heavy and lacking in presence and authority	25,102,30	●	90	4	20	●	201
Magnat Vector 77	450	Tall, dark and a lot of speaker for the money. Beautiful balance, but lacking in subtlety and transparency	22,115,29	●	89	5	30	●	183
Magnat Vintage 720	1,200	Slightly crude in some respects but lots of heart, fine scale, decent dynamic coherence and integrity	29,113,32	●	88	4	20	●	180
Martin-Logan Prodigy	8,967	Combines the finesse of an electrostatic with the grunt of cleverly engineered cone bass to good effect	42,179,71	●	91	4	28	●	204
Mirage FRX7	550	Neat slim floorstander has a heavy, laid back balance, probably better suited to movie than music reproduction	17,5,95,32	●	90	4	25	●	204
Mirage OM-5	3,000	A meaty model that goes loud without distortion, digs deep with aplomb and creates plenty of depth of image	133,30,42	●	90	6	22	●	206
Mission 700	130	A lot of speaker for the money. Good bass weight and extension and goes loud with ease	18,34,26	●	87	8	40	●	179
Mission 77C	199	A good centre-front match for 77-series, the triple tweeter might be a curiosity, but voicing is very good	42,17,21	●	91	4	100	●	198
Mission 77DS	199	Neat flush-mount surround speaker has no bass but a smooth midband and nicely restrained treble	34,26,12	●	92	4	120	●	198
Mission 771e	200	Beautifully styled miniature has a delightfully voiced midband, and real wood finish too	17,31,22	●	86	6	45	●	207
Mission 780	299	Gorgeous miniature has a fine midband and clean, bright treble, slightly odd bottom end	16,5,28,27	●	86	6	40	●	201
Mission 773e	400	Beautifully designed slim floorstander could be more neutral but still delivers an all-round entertaining sound	17,5,88,26	●	92	4	30	●	193
Mission 774	500	Gorgeous floorstander is an entertaining communicator, despite some balance oddities (bright treble)	18,95,31	●	90	4	40	●	183
Mission 782	699	Ultra-compact floorstander has a glorious midband and slightly odd bass. Good communication skills	16,5,82,28	●	86	9.5	25	●	199
Mission 775e	800	Lots of speaker for the money, and musically involving too, if a little short of serious weight and authority	23,115,30	●	93	3	25	●	204
Monitor Audio Bronze 2	180	A real corker, which combines solid material value for money with a fine all round sonic performance	18,5,35,27	●	89	3	30	●	207
Monitor Audio 702PMC	700	A good all-round standmount with intimate midband focus	20,40,25	●	87	8	30	●	174
Monitor Audio MA703PMC	800	Lovely but pricey floorstander has upfront, coherent, 'shiny' sound	20,89,27	●	88	8	50	●	160
Mordaunt-Short MS902	150	Gorgeous metal-finished budget stand-mount has a shiny sound to match its looks	18,31,25	●	87	4	45	●	207
Musical Tech Kestrel Evolution	315	Cutely styled, cleverly compact and a smooth, subtle and coherent performer, best suited to smaller rooms	20,85,19	●	86	4	40	●	201
Musical Technology Harrier	400	Very pretty package, good measured performance and even sound. Sensitivity is low, and dynamics limp	25,80,23	●	86	8	25	●	152
Musical Technology PM15	450	A subtle, understated but very involving example of the 'classic' luxury-finish compact standmount	20,41,27	●	88	5	38	●	183
Musical Technology Falcon	680	Big speaker has a big but also surprisingly smooth and civilised sound. Fine material value too	33,117,30	●	89	4	22	●	190
Musical Technology Condor	1,000	Lots of clever ideas in a floorstander, which places transparency and smoothness ahead of dynamic drama	25,91,23	●	85	4	28	●	174
Naim Intro	660	Great dynamic range and info retrieval, but thin, lacks warmth	24,89,27	●	89	6	30	●	164

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Naim Credo	1,060	Involving sound, but rather forward and cold. Good clarity, but some coloration and a lack of richness	24,89,30	F	88	8	28	●	●	180
Naim SBL Passive	1,970	Lively and punchy – smoother but more upfront than before	27,89,27	F	88	6	25	●	●	143
Naim NBL	6,648	Elegant, large floorstander is exceptionally informative with an awesome dynamic range and dry, forward balance	29,116,47	F	89	4	20	●	●	200
Neat Critique 2	445	Contemporary standmount has a clean, crisp sound with lovely natural midband voicing	22,32,24	F	86	6	50	●	●	183
Neat Mystique Mk2	575	This elegant package delivers a fine overall sound quality; some might find the top end too insistent	20,86,18	F	85	6	23	●	●	177
Neat Elite	1,195	A highly entertaining all-rounder, has a planar tweeter that sounds sweet, if not particularly smooth	20,88,18	F	88.5	6	25	●	●	195
Neat Petite II/Gravitas	2,000	Beautifully presented miniature/subwoofer combo with ribbon tweeter gives smooth, laid-back sound	23,105,40	F	85	6	25	●	●	167
NHT Super One	250	A fine compromise between size and performance, sensitivity and hence loudness capability is modest	18,5,29,5,23	F	85	8	30	●	●	170
NHT 1.5	400	This compact standmount sounds much bigger than it has any right to. Good timing and communication skills	18,42,19,26	F	85	6	40	●	●	177
NHT Super Two	550	Black and shiny compact three-way floorstander has marvellously even balance and good coherence	18,5,100,26	F	87	8.5	25	●	●	199
Opera Prima	495	Good-looking hardwood enclosure, plus fine mid and treble, but less satisfactory bass	19,34,31	F	90	4	40	●	●	190
Origin Live Conqueror	1,650	Chunky floorstanding three-way has lovely cabinetwork and lively sound, but limited deep bass	24,94,27	F	88	8	30	●	●	167
Orelle Swing	1,200	A superb example of what an essentially small loudspeaker can do, with bags of brio and enthusiasm	18,101,28	F	87	8	45	●	●	195
PMC TB1S	430	Pro-audio version of TB1, cheaper because of black paint finish	20,41,30	F	87	6	40	●	●	177
PMC TB1	482	A classy, laid-back performer that likes going loud and loves the bass guitar	20,40,31	F	87	8	45	●	●	160
PMC LB1	999	Still fully competitive eight years after our original review, this genuine compact monitor is now a modern classic	17,5,53,26	F	87	6.5	40	●	●	199
PMC FB1	1,275	Handsome floorstander has the lively coherence of a simple two-way alongside impressive bass weight and extension	20,105,31	F	88	6	20	●	●	204
Polk LS50	800	No enthusiast tweaks here, but powerful and beautiful balance	27,83,29	F	89	8	25	●	●	138
Polk RT16	799	Bass rich, lively and powerful, but suspect top end; big and not very pretty	22,105,39	F	91	4	22	●	●	160
Polk CS 1000p	999	Monstrously large and heavy centre-front speaker, presumably for those with monstrous intentions	87,22,35	F	92	4	25	●	●	198
Polk RTE 1000p	1,300	Tall elegant tower with built-in powered bass 'subwoofer' that needs using with discretion. Bright but engaging	20,110,35	F	91	4	25	●	●	198
ProAc Response 2.5	2,700	For aspirant high-enders looking for seriously good boxes, this speaker should be first port of call	22,107,25	F	86	8	30	●	●	149
ProAc Tablette 2000 Sig.	899	Beautifully veneered compact stand-mount is classically balanced, if a little on the bright side of neutral	19,36,26	F	87	6	30	●	●	204
ProAc Studio 125	1,000	Pretty if pricey compact floorstander with a beautifully natural and neutral midband, and some bass thump	20,94,28	F	87	8	28	●	●	192
QLN Signature	1,000	Attractive pyramidal standmount with heavy, laid-back balance but remarkably unboxy sound	27,37,36	F	83	4	25	●	●	167
Rega Jura	450	Beefy sounding, chunky floorstander sounds very 'direct coupled' to the music, if a touch 'boom'n'tizz'	22,5,92,5,26	F	90	5	25	●	●	193
Rega ELA Mk II	498	Pretty and smooth, the latest incarnation has a superb midband and excellent communicative skills	30,80,20	F	87	8	40	●	●	139
Rega XEL	1,040	Looks and sounds great: balance bright but even, with delightful coherence and timing	20,82,30	F	89	6	40	●	●	132
Rehdeko RK 115a	1,700	Single-driver system has limited bandwidth and obvious coloration, but wondrous dynamic coherence	34,42,27	F	95	8	55	●	●	167
RMS Revelation Series 1	1,299	Innovative metal-box compact with integral port/stand – clean with good timing but very laid-back balance	20,99,24	F	81	8	22	●	●	167
Roksan ROKone	595	Large standmount is musically very communicative, if a little coloured	21,45,33	F	89	6	30	●	●	160
Roksan Ojan 3 Black	795	Squat, stylish and black, great bass extension and somewhat uneven balance	28,76,46	F	88	8	20	●	●	132
Roksan OJ3X Black	995	Innovative low-line, two-way floorstander with decoupled tweeter; great bass and fine dynamic range	28,79,46	F	84	8	20	●	●	167
Royd Minstrel	275	Not much welly or loudness, but fine coherence and timing; a bit bright	18,69,12	F	86	8	30	●	●	135
Royd Doublet	485	Great value compact floorstander: lively and very informative, if a little uneven	18,93,19	F	90	4	28	●	●	160
Royd The Sorcerer	595	Extremely musical and communicative speaker that's fun to listen to. Aesthetics could be better, though	20,31,18	F	86	8	35	●	●	139
Ruark Epilogue	269	Beautifully finished miniature with a lively balance and plenty of charm; best suited to smaller rooms	17,29,23	F	87	8	47	●	●	183
Ruark Sceptre	599	'Traditional' cabinetwork with classy veneer and shiny gilt fixings, hampered by rather wayward sound balance	21,38,31	F	87	8	40	●	●	174
Ruark Prologue One R	949	Strikingly contemporary compact floorstander is well voiced but a little lean in overall balance	17,5,93,28	F	88	5	25	●	●	204
Ruark Crusader	1,599	Elegant luxury three-way with wonderfully even-handed, if rather laid-back balance	24,94,31	F	85	6	22	●	●	167
Ruark Equinox	1,849	The primary strength of this speaker is its ability to vanish behind the music	25,88,34	F	88	6	45	●	●	140
Ruark Excalibur	7,000	A big, handsome speaker with a big, laid-back but open sound, rocking bass and loads of headroom	30,125,53	F	90	4	30	●	●	186
Sequence 400	329	Clever hang-on-wall panel is well voiced, though bass isn't too great	25,100,7	F	86	8	45	●	●	164
Silverado Raider	695	Beautifully built audiophile compact: neutral if bright, tough work for amps	20,40,25	F	83	3	30	●	●	164
Snell K.5	795	Classy AV-ready stand mount is very solidly engineered. Sound is neutral but lacks excitement	22,46,30	F	87	6	25	●	●	190
Snell XA75ps	4,500	Active bass floorstander with marvellous mid coherence, slightly suspect bass integration.	28,117,50	F	91	6	25	●	●	194
Soliloquy SM 2A3	1,095	Fine match in balance, coherence, transparency and speed. Intended for use with Cary CAD 2A3SE	35,5,19,30	F	91	8	45	●	●	196
Sonus Faber Concertino	599	A beautifully neutral loudspeaker in a beautiful Italian suit of clothes. Classy, if quite pricey	21,32,29	F	87	5	30	●	●	193
South Coast Speakers Lancelot	895	Pretty compact standmount has nice ribbon tweeter but sounds a bit soft and lacks dynamic vigour	19,36,26	F	84	8	45	●	●	199
Spendor 2030	599	Discreet slimline floorstander with delicately coherent, laid-back sound	18,89,27	F	87	8	30	●	●	160
System Audio 1130	499	Super-slim, super-smooth, involving experience, but not ideal if you like your bass deep and loud	3,100,21	F	89	4	43	●	●	183
System Audio 1150	749	Pricey but persuasive, sonic subtleties sneak up to confound a dodgy first impression. Super-slim	16,105,26	F	90	4	30	●	●	190
TAG McLaren F1	15,000	Oddball aesthetics with accurate, unflappable, controlled and consistent sonic neutrality	40,127,48	F	87	8	25	●	●	202
Tannoy mX2	150	Surprisingly refined considering its very modest price: very communicative with outstanding midband delicacy	18,5,33,25	F	89	4	45	●	●	207
Tannoy R1	200	Pretty little mini-monitor is smooth, well mannered and polite to a fault, lacks dynamic expression	17,30,22	F	86	4	30	●	●	187
Tannoy Saturn S6C	200	A punchy compact standmount based on a serious cast-frame, pro-style dual-concentric driver	38,21,29	F	89	6	25	●	●	198
Tannoy mX3	300	A great all-round compromise at a very modest price, combining good looks with fine midband voicing	18,5,87,26	F	90	5	40	●	●	201
Tannoy Revolution R2	350	Bargain price real wood floorstander is beautifully voiced and very even-handed, if a tad laid back	17,94,24	F	90	4	20	●	●	193
Tannoy Saturn S6LCR	400	A punchy compact standmount based on a serious cast-frame, pro-style dual-concentric driver	21,38,29	F	89	6	25	●	●	198
Tannoy Saturn S6	500	Fine value vinyl floorstander offers plenty of genuine grunt and real dynamic tension	21,89,29	F	91	4	20	●	●	198
Tannoy Revolution R3	550	Handsome real-wood floorstander does a decent job, but lacks the evenness of its smaller R2 brother	18,5,103,28	F	89	8.5	28	●	●	199
Tannoy D300	999	Gorgeous-looking compact floorstander. And a fine all-round performer, too	16,24,85,23	F	87	6	26	●	●	167
Tannoy ST-100	1,200	This supertweeter adds a subtle and delicate effect while also broadening the soundstage at a price	15,10,5,6	F	95	8	N/A	●	●	206
Tannoy D500	1,999	Plenty of muscle and stereo, but short of poise and delicacy. Hard work for amps	31,93,34	F	91	6	20	●	●	143
Technics SB-M20	200	Well-balanced with natural perspectives and fine midband coherence, but bass is a bit boxy and uneven	20,32,23	F	70	8	50	●	●	148
Technics SB-M500	450	This model offers a clean, open sound, offset by midbass, heavy balance and low sensitivity	25,78,37	F	85	8	25	●	●	152
Triangle Cometes	359	Communicative standmount has great midband dynamics, but the very bright top end might be intrusive	22,40,29	F	91	4	42	●	●	193
Triangle Zephyr II	599	Loads of fun. Dramatic dynamics and righteous timing will give any hi-fi system a wake-up call	22,94,29	F	91	4	25	●	●	190
Totem Model One	1,195	Utterly delightful but exasperatingly expensive luxury miniature sets the benchmark for its size	17,31,23	F	87	4	28	●	●	122
Veritas H3	6,000	Loads of fun with wonderful dynamic and temporal integrity from horn-loaded Lowther drivers	30,110,47	F	104	4	50	●	●	191
Vienna Acoustics Mozart	1,500	Gorgeous slimline floorstander sounds very laid-back but very charming, and musically literate	17,97,30	F	88	7.5	25	●	●	199
Wilson benesch Bishop	20,000	Deep and even bass sets new standards for cleanliness and clarity; lovely open midband too	23,161,561	F	89	4	S20	●	●	189
Wharfedale Diamond 7.2	140	A good-hearted, lively and up-front performer that's a little lacking in subtlety and smoothness	19,29,23	F	88	4	45	●	●	169
Wharfedale Diamond 7.2 Anniversary	200	Lively and exuberant, but a tad untidy with it; can sound a bit cold and hard	19,29,23	F	88	4	40	●	●	187
Wharfedale Valds 400	200	Very loud with a minimum of amplification, but the sound is thick and uneven, with a heavy upper bass	25,80,26	F	91	8	30	●	●	148
Wharfedale Valds 500	300	These rock boxes can move plenty of air, albeit not as subtly as alternatives	25,108,26,5	F	91	4	40	●	●	155
Zingali Overture 2S	1,975	Gorgeous, pricey, imposing standmount has a horn tweeter of great delicacy. Impressively weighty	30,57,38	F	90	8	25	●	●	195
SUBWOOFERS										
Acoustic Energy AE108S	299	Lots of loud subwoofer for your money, though ultimately more film than music oriented	50,42,43	F			20	●	●	179

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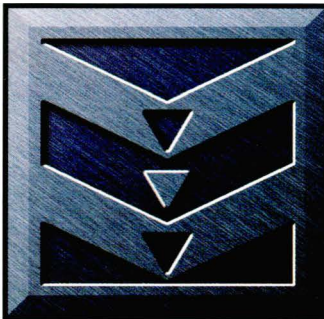
LOUDSPEAKERS

STATUS

SPECIFICATIONS

SIZE WxHxD (CM) FLOORSTANDER SENSITIVITY (db/W) IMPEDANCE (Ω) BASS FROM (HZ) FREE SPACE CLOSE TO WALL ISSUE NUMBER

PRODUCT	(E)	COMMENTS	SIZE WxHxD (CM)	FLOORSTANDER	SENSITIVITY (db/W)	IMPEDANCE (Ω)	BASS FROM (HZ)	FREE SPACE	CLOSE TO WALL	ISSUE NUMBER
B&W ASW1000	499	Bulky heavyweight is a high quality item, able to generate more bass output than music is likely to need	54,47,50	●	A	A20	●	●	●	198
JPW SW60	349	A real heavyweight, sounds clean and transparent, if perhaps a little understated. Usefully flexible	55,47,39			20	●	●	●	179
KEF Model 30B	499	(Active) Commendably discreet with good sense of timing but limited extension	38,5,37,43	●	A	45	●	●	●	154
M&K MX70	900	(Active) Justifies cost and belies its diminutive size, with an agility that makes sense of the toughest material	25,5,46,35		A	25	●	●	●	179
Mission 7AS2	399	Ugly if very effective at supplying very low bass, but filter could do with more flexibility higher up	56,30,31	●		<20	●	●	●	198
REL Q50	375	(Active) Genuinely deep, clean bass from an attractively compact and cost-effective package	40,41,42		A	20	●	●	●	179
Soliloquy S10	1,050	(Active) Pretty subwoofer, cosmetically matching SM 2A3 speakers, pricey and mid-bass a bit strong	51,30,5,46	●	A	25	●	●	●	196



Stands & Supports

Hi-fi supports are more important than you might imagine – they can have very subtle effects on the sound of your system. There are two kinds of support: those for equipment and those (stands) for loudspeakers. Equipment supports keep vibrations and resonances from affecting electronic components, while speaker stands hold enclosures stock-still and ensure they are at the correct height for your ears. Equipment supports may be rigid affairs fabricated from steel or more exotic materials; or they may have a form of suspension. Speaker stands come in a variety of sizes and styles to suit different models, and vary between open-frame and solid-pillar types. Always check with speaker and electronics manufacturers to see which supports they recommend.

KEY TO SPECIFICATIONS

- **HEIGHT (cm):** How tall is your support?
- **TOP PLATE SIZE (cm):** Dimensions of top surface on stand or equipment support.
- **FILLABLE:** Some speaker stands can be mass-loaded with sand or lead-shot to improve sound.
- **WELDED:** The better stands and supports are welded together rather than just bolted.
- **NUMBER OF SHELVES:** The number of tiers on an equipment rack or support.
- **SHELF TYPE:** The material from which shelves are made. Wood generally means Medium Density Fibreboard (MDF).
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

STANDS & SUPPORTS

STATUS

SPECIFICATIONS

HEIGHT TOP PLATE SIZE (CM) FILLABLE WELDED NUMBER OF SHELVES SHELF TYPE ISSUE NUMBER

PRODUCT	(E)	COMMENTS	HEIGHT	TOP PLATE SIZE (CM)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	ISSUE NUMBER	
EQUIPMENT SUPPORTS										
Avik C4	200	Attractive wood finish stand with a very large footprint but sound is a little coloured	77	47			4	MDF	206	
Avik Furniture A4	350	Good sound and stylish Scandinavian looks at an affordable price	80.5	47			4	Wood	193	
Alphason GR 17/17-AS	275	Great looks but sound can be bettered for the money	36	60,39			4	Glass	181	
Apollo Symphony	245	Simple steel and glass stand which majors in excitement factor but lacks precision	73	46.5		●	4	Glass	206	
Apollo Soprano	275	Uninspiring looks and sonic performance that can be beaten at this price	68.5	45.5			4	Glass	193	
Atacama Europa	240	Stylish, expandable modular design with agreeable full-bodied sound – great value	67	48.6			4	Wood	193	
Audiophile Furniture Base	615	Price is justified by its earth-shattering sonic abilities – a worthy upgrade	82	43			4	MDF	193	
Avid Isosshelf	1,100	An enthusiasts equipment support stand free from coloration if a little fiddly to set up	87.5	48			5	MDF	193	
Custom Design Aspect650	270	Smart looks and practical thanks to adjustable shelves. Sound is fair with some loss of detail	66	46		●	4	Glass	206	
Elemental Isotube x 4/Ref	1,199	Blockbusting size and build. Super sound quality	92	45,49			4	Marb	181	
Elemental Audio Isotube X4	849	A hefty stand that demonstrates just how much difference a good support can make	90	49			4	Glass	193	
Frameworks H500/H175	404	Two-shelf stand and isolation platform combo in tubular steel – made a spectacular impression on audition	70	52,34		●	3	Glass	166	
Ixos Deadrock 704	250	Looks unassuming but sound is full and inviting		46,39			4	Resin	181	
Mana 4-tier	500	The ultimate statement in steel and glass; adds resonance in a way you'll love or hate	87	45		●	4	Glass	206	
Optimum Int 2000 OPT490	299	25kg stand with shelves between variable-height tubular uprights. Sounds smooth and relaxed with sturdy bass	50	60,40			4	Glass	166	
Optimum Int 2000 OPT660	349	Glitzy style isn't reflected in sound, which is wholesome	82	60,52			5	Glass	181	
Projekt Furniture A4	215	An elegant support stand that blends in to any home environment with a laid-back sound	56	48			4	Wood	193	
Quadraspire Q4	280	Simple but modestly effective and very attractive	52	49			4	MDF	206	
Sonus System Elite	330	Rather ugly and seems to offer little over and above cheaper steel and glass stands	68	50		●	4	Glass	206	
Sound Organisation Z560	160	Welded and bolted members give structural integrity. While performance is not up with the best, it's great value	90	46,36		●	5	Wood	166	
Sound Organisation Z545	160	Budget price and great looks make this a great value stand	73	46			4	Glass	193	
Soundstyle X100	230	Looks lovely, sounds lively but slightly bright	64	49,28		●	4	Glass	181	
Soundstyle XS100	270	Less character than other similar strands, but sound is somewhat short on transparency	72.5	49.5		●	4	Glass	206	
Soundstyle Radius SR100	280	Stylish looks and a smooth sound	63.5	49.5		●	4	Glass	193	
Soundstyle Finewoods W105	320	Veneered shelves clamped between tubular uprights. Delivers with classical material	82	48,27			4	Wood	166	
Standesign Design 4	190	An all-in-one support at a budget price with good sonic performance	88.5	50.8		●	4	Glass	193	
Townshend Seismic Sink AV1-4	600	Gives significant isolation for turntables and seems to add little character otherwise	74.5	45			4	MDF	206	
Townshend Seismic Stand	1,245	It's big, it wobbles and it's pricey. But this is the ultimate equipment support	72	58,45			3	Wood	181	
Wilson benches Asside	590	Sounds even better than it looks. And it looks wonderful	72	37,50			4	Wood	181	
SPEAKER STANDS										
Alphason Akros II	65	A well-specified budget stand but the sound is as subtle as a house party	60,45	16.5		●			202	
Alphason HDS	85	A reasonable stand with a smooth but rather bland sound balance. Good finish options	45-60	15,5,15,5		●			189	
Apollo Olympus	75	A popular stand and a decent performer, but unremarkable by today's standards	40-60	15,12,5		●			189	
Apollo A4/6	82	A pretty and robust design that sonically fails to stand out from the crowd	51,40,51	18					202	
Atacama Nexus 6	50	An excellent all round performer and a genuine hi-fi bargain	60,50	14,5,18		●			202	
Atacama R724	150	Atacama uses its market strength to deliver a superbly appointed product at a very reasonable price	60	15,17		●	●		189	
Custom Design R/S300 MkII	100	A solid stand improving on the original with better focus and detail	61,56,51	16,5,18		●			202	
Elemental Isotube SZse	599	Stands of distinction, able to free the speaker's sound from its box in a way budget stands simply can't	61	23,27		●	●		189	
JPW HS1	120	A purposeful stand, a touch dry-sounding but particularly strong with bass. Great for rock and dance music	61	19,21		●			189	
Mana Sound Base	175	The Sound Base plinth simply improves the sound of every speaker placed on it	8	29,32					202	
Mission Stance	100	Detailed and open but needs a firm foundation to give its best	60	19,15		●			202	
Partington A-4	119	An oddball stand with a sound that's sheer class. More open and focused than almost anything below £150	50-100	19,22		●	●		189	
Partington Dreadnought Ult.	299	Super heavyweight stand that is an open window to the speaker placed on it	63	20,5,23,5		●			202	
Russ Andrews Torlyte	599	Subtle and musical-sounding stands, though a touch more 'pizzazz' is need for Recommendation at this price	61	33,5,24					189	
Sonus Systems Excel	110	Strong performance when filled with sand but design flaws let it down	65,45	20,22,5		●			202	

CONTINUED

STANDS & SUPPORTS

SPECIFICATIONS

TOP PLATE SIZE (cm) FILLABLE WELDED NUMBER OF SHELVES SHELF TYPE ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	TOP PLATE SIZE (cm)	FILLABLE	WELDED	NUMBER OF SHELVES	SHELF TYPE	ISSUE NUMBER
Sound Organisation Z524	69	A coherent-sounding stand with particular strengths in the midband, though quality drops at the frequency extremes	61	16,17				189
B Sound Organisation Z522	89	Easy going and likeable performer straight out of the box	59	16,17	●			202
Sound Style Select	95	OK but not as good as its cheaper brother the Z522	59	16,17	●			202
Target HM60	106	A solid and well-built stand laid-back to the point of coma	40-70	16,5,19	●			202
B Townshend Seismic Sink	499	Unique inflatable plinth that works well with decent floorstanders as well as standmounted speakers	4	38,48				202



Tonearms

Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). However, hard-core vinyl fans should invest in a more expensive separate motor unit with specialist tone-arm – the only way to make the most of vinyl LPs. It is essential to achieve operational synergy between such components, so this is one area of hi-fi where the skills of a knowledgeable dealer are invaluable. The quality of a tonearm's construction and design affect sound quality significantly. There are three basic arm designs listed in the key, and each has strengths, but pivoted designs are the most popular, being usually the most practical and affordable.

KEY TO SPECIFICATIONS

- **EFFECTIVE MASS:** This relates to cartridge compliance. Generally high mass arms are suitable for low compliance cartridges and vice versa.
- **PARALLEL TRACKING:** An arm which allows the cartridge to track the disc in a linear fashion.
- **PIVOTED:** Arms which allow the cartridge to describe an arc as they traverse the record.
- **UNI-PIVOT:** Pivoted arms with a bearing that allows movement in two planes.
- **EFFECTIVE LENGTH (CM):** Length of the arm from bearing to cartridge mounting.
- **ADJUSTABLE HEIGHT:** Important for accurate cartridge set-up.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

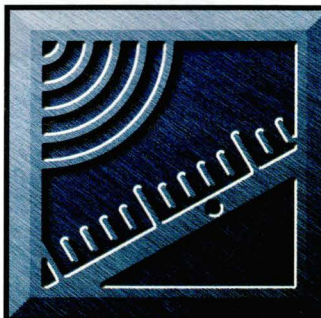
TONEARMS

SPECIFICATIONS

PARALLEL TRACKING PIVOTED UNI-PIVOT EFFECTIVE LENGTH (cm) ADJUSTABLE LENGTH EFFECTIVE MASS ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	PARALLEL TRACKING	PIVOTED	UNI-PIVOT	EFFECTIVE LENGTH (cm)	ADJUSTABLE LENGTH	EFFECTIVE MASS	ISSUE NUMBER
B Kuzma Stogi Ref	1,250	Large, solid and well made arm, gives exceptionally clear sound with just a hint of brightness				High	●	●	79
R Linn Ekos	1,500	Superb, state-of-the-art design which builds significantly on predecessor's strengths				Medium	●	●	67
B Moth/RB250	109	The ultimate budget arm? Refined, sweet, detailed and natural				Low	●	●	60
B Rega RB300	174	Despite its modest price it sets exceptional standards and could be used on many high-end turntables				Low	●	●	60
R Roksan Tabriz Basic	350	Targeted at the Xerxes, this is a good alternative to the Rega arm in many cases – a touch bright though				Low	●	●	91
R SME Series IV	983	Superb engineering and finish with a finely balanced sound, impressive stereo focus and low coloration				Low	●	●	60
R SME Series V	1,461	Excellent in all respects, this arm arguably sets the standards for pivoted arms, regardless of price				Low	●	●	60



Tuners

TV has stolen radio's status as the foremost broadcast entertainment medium, but with its Radio Four plays and Radio Three music, the BBC still makes a potent case for audiophile reception equipment. For how much longer, under the cost-conscious Birtist régime, remains to be seen. Another new impendable is the arrival of digital radio broadcasting, though reception apparatus is currently non-existent outside of the in-car market. These days tuners play second fiddle to hi-fi sources like CD, but in many ways they are a greater engineering challenge than digital equipment, and thus higher price-tags clearly equate to superior performance. High-quality, roof-mounted antennae are essential for audiophile listening, so factor them into your budget.

KEY TO SPECIFICATIONS

- **WAVEBANDS:** FM – (VHF), M – MW, L – LW, traffic news and other information about broadcasts.
- **PRESETS:** Number of station frequencies that can be stored.
- **RDS:** (Radio Data System) was originally designed for in-car applications. RDS tuners can identify and display the name of the radio station being received,
- **REMOTE CONTROL:** Infra-red control handset supplied.
- **SIGNAL STRENGTH METER:** Indicates strength of signal from aerial – useful for aligning your 'twig' during installation,
- **ROTARY TUNING KNOB:** Experience has shown that this analogue throwback is ergonomically far superior to the button-based approach.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE

TUNERS

SPECIFICATIONS

WAVEBANDS PRESETS RDS REMOTE CONTROL SIG. STRENGTH METER ROT. TUNING METER ISSUE NUMBER

STATUS

PRODUCT	(£)	COMMENTS	WAVEBANDS	PRESETS	RDS	REMOTE CONTROL	SIG. STRENGTH METER	ROT. TUNING METER	ISSUE NUMBER
R AMC T7	130	Performance adequate but price is sharp, especially with remote control. Some hum	FM, M	30		●			166
R Arcam Alpha 7	230	Indifferent RF performance but a touch of audiophile sound quality with clean, strong signals	FM, M, L	24					166
R Arcam Alpha 10 DRT	800	The first DAB tuner and arguably still the best, but the system's still not perfect	DAB	7	●	●	●	●	199
R Cambridge T500	180	Very capable tuner suited to good and less good reception conditions	FM, M, L	64					193
R Creek T43	399	Quality UK-made tuner offering classy sound in all areas at a very fair price	FM, M, L	64					193
R Cymbol C-DAB 1	1,000	The first 'high-end' DAB tuner, although format is the ultimate limitation. Gorgeous finish	DAB	8	●	●	●		199
B Denon TU-260L II	130	The return of the all-time favourite, now enhanced with RDS and sounding as fine as ever	FM, M, L	40		●			193
R Denon TU-425RD	200	A fine all-rounder with advanced RDS, good RF performance and decent sound. Remote extra	FM, M	40		●			166
R Denon TU-1500RD	250	A well balanced and clean sound with good bass and treble extension	FM, M	40		●			184
R Magnum Dynalab FT11	499	All-analogue tuner: receives weak or tightly packed stations but loses out on noise and sonic neutrality	FM	3			●	●	184
R Harman/Kardon TU950	200	Bulky but effective, delivering fine RF performance and good sound for the price	FM, M, L	30		●			166
R Leak Trough Line - GTA	300	A renovated classic with a style all of its own coupled with an emotive and gutsy performance	FM	0			●	●	206
R Linn Kremlin	2,600	Controversially good sound at a very high price	FM	80			●	●	142
R Marantz ST-48	120	A classic budget model which manages a performance only just behind much more expensive models	FM, M	60		●			184
R Myryad T-30	400	Attractive product that produces attractive sounds too: capable of very musical performance with a good aerial	FM	29			●	●	193
R Myryad T-10	530	A very smart unit which works well and offers good rhythmic drive and vitality, albeit at a price	FM	20			●	●	184
R NAD C440	200	Rather polite sound, a little vague at times, that seldom offends but never excites	FM, M	30		●			193
R Pioneer F-504RDS	250	Cable-friendly with advanced RDS and excellent RF performance; slightly disappointing sound	FM, M	40			●	●	166
R Pioneer F-504RDS Precision	300	Lots of features, plus a sound that's low on noise and high on communication, adds up to a good value package	FM, M	40		●			184
R Roksan Caspian	595	Neat fascia with great ergonomics, but sound is not really any better than models at half the price	FM	50			●	●	184
R Sony ST-SE500	140	A lot of features for the money, but sound lacks detail and has some coloration	FM, M, L	30			●	●	193
R Rotel RT-935AX	160	Good ergonomics and sound quality at a realistic price, but limited features and RF selectivity	FM, M	20					166
R Sony ST-SA3ES	250	Clean, lean presentation but needs a quality aerial to perform at its best	FM, M, L	30			●	●	157



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TUNERS

SPECIFICATIONS

WAVEBANDS PRESETS REMOTE CONTROL SIG. STRENGTH METER ROT. TUNING KNOB ISSUE NUMBER

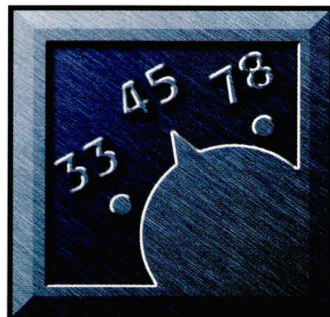
STATUS

PRODUCT	(£)	COMMENTS	FM,M,L	30	●	●	●	184
Sony STS-B920S	180	A little hiss and image compression don't detract from the clean performance of this feature-packed tuner	FM,M,L	30	●	●	●	184
Technics ST-GT1000	500	Handy tuner that combines DAB, FM and AM in one unit and substantially lowers the price bar for DAB entry	DAB,FM,M	97	●	●	●	199
Thorens TRT2000	499	Not exactly neutral sounding, but nonetheless makes listening fun	FM,M	59	●	●	●	157

KEY TO SPECIFICATIONS

- **MANUAL:** You do all the work.
- **AUTO:** The record player does all the work.
- **SEMI-AUTO:** You put the needle on, the turntable lifts it off at the end of the record.
- **SPEEDS:** In RPM to correspond with long-playing records or seven/12-inch singles.
- **SUSPENDED SUBCHASSIS:** Sprung suspension to minimise structural interference.
- **EXTERNAL PSU:** Outboard power supply, generally indicative of higher-quality performance.
- **SUPPLIED WITH ARM:** Many turntables do not come with a tonearm fitted, but if this category is checked, the deck is already thus equipped.
- **SUPPLIED WITH CARTRIDGE:** If a turntable comes complete with arm and cartridge.
- **ISSUE NUMBER:** The issue of *Hi-Fi Choice* in which an original review appeared.

B BEST BUY **R** RECOMMENDED **E** EDITOR'S CHOICE



Turntables

Specialist turntables are at the heart of high-fidelity sound. CD players may offer ultra-low noise and a flat frequency response, but they can't match the dynamics and superlative rhythmical timing taken for granted by serious turntable users. Less expensive turntables are usually supplied with a matching tonearm (and often a 'starter' cartridge, too). Still better quality is found at higher prices among the separate motor units and tonearms. Because turntables are mechanical devices, designed to retrieve micron-small modulations engraved into vinyl, engineering quality is of paramount importance. This is also the reason why turntables cost as much as they do, and require the finest equipment support systems.

TURNTABLES

SPECIFICATIONS

MANUAL AUTO SEMI-AUTO SPEEDS SUSP. SUBCHASSIS EXTERNAL PSU SUPPLIED WITH ARM SUPPLIED WITH CART. ISSUE NO.

STATUS

PRODUCT	(£)	COMMENTS	MANUAL	AUTO	SEMI-AUTO	SPEEDS	SUSP. SUBCHASSIS	EXTERNAL PSU	SUPPLIED WITH ARM	SUPPLIED WITH CART.	ISSUE NO.
Audio Note TTI/ARM1	594	Simple and unpretentious, it delivers a real taste of true high end performance at an affordable price	●	●	●	●	●	●	●	●	203
Avid Acutus	4,995	Extremely capable design with no apparent shortcomings, don't sell your vinyl 'til you've heard it on this!	●	●	●	●	●	●	●	●	194
Clearaudio Reference	3,990	Opulent beast tested with Souther TQ-1 arm. Tends to gloss over detail, but can sound bold	●	●	●	●	●	●	●	●	144
DNM Rota 2	5,600	Tonally slightly bleached, but extracts detail like few others. Works well on its own table	●	●	●	●	●	●	●	●	144
Dual CS 455.1	220	Neat record player with automatic convenience (and 78rpm), but doesn't match simpler manual rivals sonically	●	●	●	●	●	●	●	●	203
Dual 505-4 UK	250	Consistent sounding and well isolated turntable. It is slightly lacking in oomph	●	●	●	●	●	●	●	●	103
Kuzma Stabi/PS	1,950	(Tested with Stogi Reference) Solid oak plinth; sound is very clear, detailed and extended	●	●	●	●	●	●	●	●	91
Linn LP12 Basik	1,100	Trails the full LP12 significantly, but pace, rhythm, timing etc. still top rank	●	●	●	●	●	●	●	●	103
Linn LP12 Lingo	1,750	The classic reference is improved by the Lingo, but charming character remains	●	●	●	●	●	●	●	●	91
Michell Gyrodec	875	Sweet and natural-sounding player, well matched to Rega RB300 arm	●	●	●	●	●	●	●	●	55
Michell Gyro SE	775	A stunningly desirable combination of looks, solidity and sound make this a tempting turntable	●	●	●	●	●	●	●	●	190
Michell Orbe SE	1,725	A superb turntable, able to mix it with the best at virtually any price	●	●	●	●	●	●	●	●	192
Moth Kanoot	329	Rather coarse-sounding deck that requires decent isolation and comes with a Rega RB300 arm	●	●	●	●	●	●	●	●	164
NAD 533	220	Sonically a little crude, but musically satisfying results at a very modest price	●	●	●	●	●	●	●	●	203
Notits Analogue Spacedeck/Arm	750	No frills, just a first-rate, outstandingly natural-sounding deck that will last forever	●	●	●	●	●	●	●	●	159
Pink Triangle Tarantella II	850	A turntable that looks unlike any other, with rare ability too. Quirky, but sound is immensely likeable	●	●	●	●	●	●	●	●	192
Pro-ject 2	300	Remarkably effective at the price, with decent timing and a generally well defined sound	●	●	●	●	●	●	●	●	164
Pro-ject Classic Cherry	450	A great looking turntable with a generous and dynamic sound, but lacks something in overall coherence	●	●	●	●	●	●	●	●	203
Pro-ject Perspective	750	Flexible facilities and competitive package, but performance of turntable alone is behind the best	●	●	●	●	●	●	●	●	192
Pro-ject 6/Sumiko	850	Don't think of this as a deck with a good arm, but as a scaled-down Oracle Delphi – it's that good	●	●	●	●	●	●	●	●	138
Rega Planar 2	214	A remarkable product at the price, surprisingly articulate and confident	●	●	●	●	●	●	●	●	48
Rega Planar 3	274	Sounds musical in a balanced manner, needs decent isolation and suffers a little pitch instability	●	●	●	●	●	●	●	●	164
Rega Planar 25	619	Great looking turntable has a silky smooth sound with exceptional midband coherence	●	●	●	●	●	●	●	●	203
Reson RS1	600	Supplied set-up and ready-tuned, this unconventional deck is packed with mid-band detail	●	●	●	●	●	●	●	●	159
Roksan Radius 3/Tabriz zi	890	Elegant-looking turntable with a tidy, ordered sound. Bright and breezy if a shade lightweight	●	●	●	●	●	●	●	●	159
SME Model 10A	3,333	Elegant and extremely capable design with Series V/309 hybrid arm, superbly built	●	●	●	●	●	●	●	●	195
SME Model 20.2A	4,863	Beautifully built, extremely neutral damped and suspended deck with superb sound. Inc V arm	●	●	●	●	●	●	●	●	186
Thorens TD166 V/UK/RB	400	Refined, solid sound with well-focused imagery; suitable for use with good MM/MC budget cartridges	●	●	●	●	●	●	●	●	103
Thorens TD146 VI	550	Tonearm not quite up to turntable's potential; this semi-auto is much pricier than manual TD166	●	●	●	●	●	●	●	●	203
Thorens TD2001	700	Balances convenience and sound well, but deck lacks detail and bass could be better controlled	●	●	●	●	●	●	●	●	159
VPI HW19 Junior	650	A notably large and handsome turntable with good sound quality and considerable upgrade potential	●	●	●	●	●	●	●	●	203
Well Tempered Record Player	850	Intriguing and challenging. Musically not ideal, but its limpid quality and lack of artificiality set standards	●	●	●	●	●	●	●	●	136
Well Tempered Reference	5,500	Superb mechanical stability and unflappability result in a clean reproduction	●	●	●	●	●	●	●	●	205
Wilson Benesch The Circle	795	A beautiful turntable with a sumptuous sound, all at a very reasonable price – a clear Best Buy	●	●	●	●	●	●	●	●	192

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DEFINITIVE TUNERS

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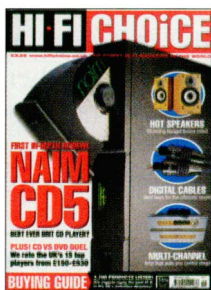
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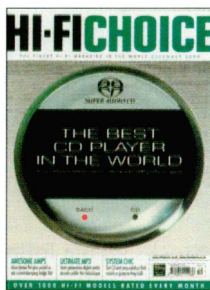
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◀ Continued from page 95

“THE CASE IS SOLVED BUT I’M DISAPPOINTED THAT THE ERROR WENT SO FAR WITHOUT BEING DETECTED”

back into the stereo 96kHz pair before it’s sent to the DVD plant. Two channels’ worth of 192kHz data is another matter, requiring not four but *eight* 48kHz channels to accommodate the increase in sample rate.

DOUBLE STANDARDS

Unfortunately, the protocols for interleaving eight 48kHz channels into two 192kHz are not agreed, despite dCS having published its own ‘standard’ for communicating digital audio at this exceptional rate. It really looks as if the eight 48kHz channels are being ‘jumbled up’ rather than seamlessly interleaved to 192kHz via Sonic Solutions HD software package. By way of confirmation, Syrinx Music & Media sent me a DVD-R copy of Technics’ forthcoming *Jazzport 2000* disc. Figure 2 shows a spectral snapshot of the strong percussive conclusion (~5mins 37secs) to track 7 on this disc. The ‘reflection’ of data either side of 48kHz is obvious, smothering the natural brassy decay of this percussive music. In short, like the *Jazzport 1999* disc, it’s a mess.

THE FUTURE OF 192K

Too late to save Technics’ DVD-A demo disc (or the *Jazzport 1999* and Hamamura Quintet discs), there was time to recover this year’s GENEX recording of Technics’ Westport Jazz Festival. By re-arranging various of the eight 48kHz channels via a digital mixer before interleaving and authoring the data in Sonic Solutions HD package, the original two-channel 192kHz feed has finally been recovered intact. Syrinx then sent a ‘work-in-progress’ DVD-R of what will become Technics’ *Jazzport 2000* disc, due for release in 2001.

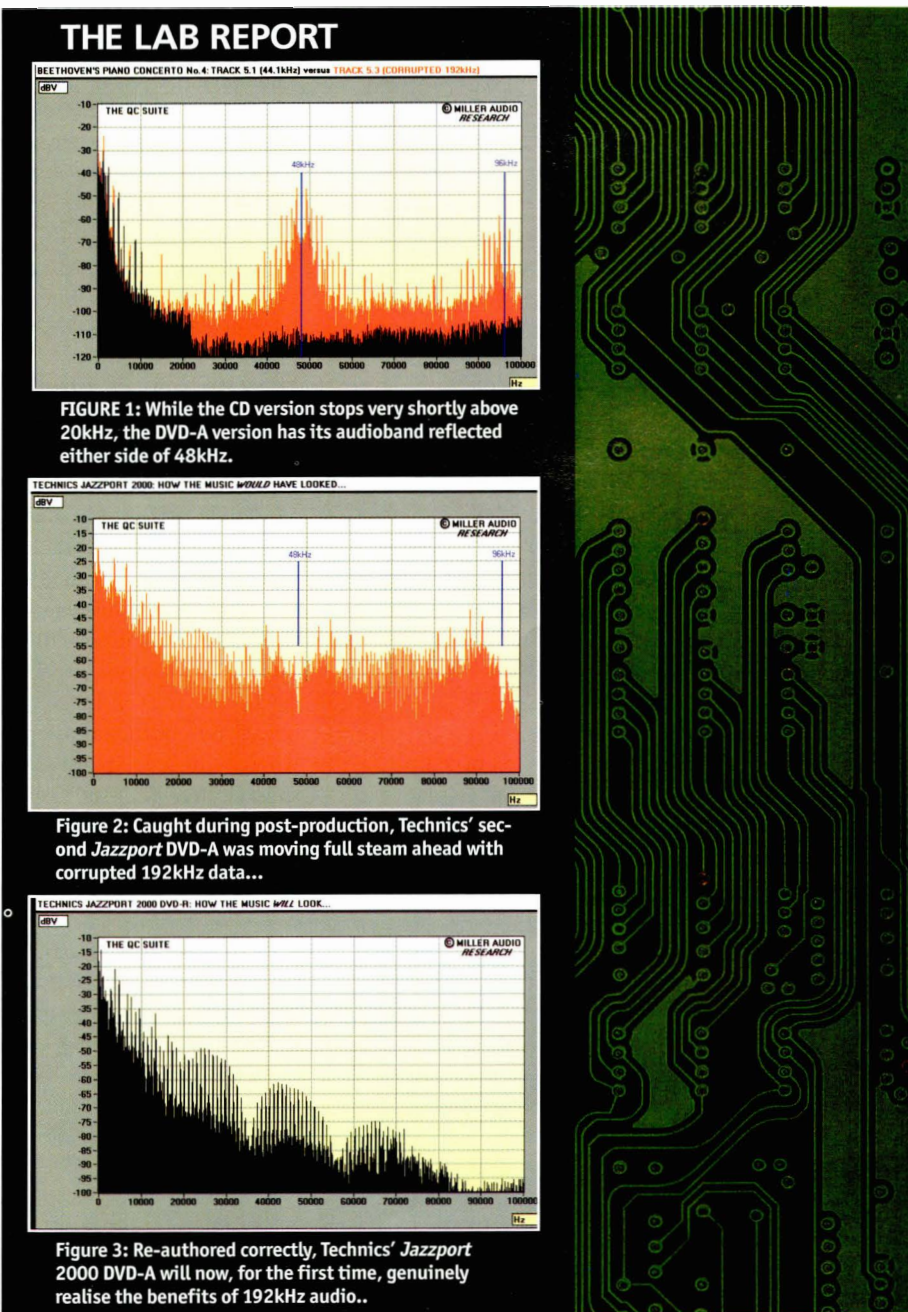
Figure 3 tells its own story. This is a snapshot of the same percussive conclusion to track 7, free of digital reflections and distortion about 48kHz and 96kHz, but showing, instead, a complex series of natural, brassy harmonics extending way above audibility. It’s now possible to visualise just how distorted the ‘original’ *Jazzport 2000* DVD would have been (Figure 2). I find it mind-boggling to consider that no one ever heard this.

The case may be solved but I remain disappointed that the error should have travelled so far without ever being detected. Perhaps it’s as good an example of the Emperor’s New Clothes syndrome as you are likely to find – and another reason why I have been championing the cause of carefully done

blind, level-matched listening tests these many years. With any luck, and with the year 2001 upon us, this DVD-A fiasco will have been laid to rest and consumers and reviewers alike can look forward to receiving pukka 192kHz software. But, just to be on the safe side, I’ll be keeping a weather eye on all new releases.

Do you have a subject matter for the Oasis? Please contact Paul via e-mail on

MILLER_AUDIO_RESEARCH@compuserve.com



Balancing act

THE IDEA OF TAILORING THE SOUND OF YOUR SPEAKERS TO THE SHAPE OF YOUR ROOM ISN'T A NEW ONE. PAUL MESSENGER REMEMBERS THE FIRST TIME...

It was a lovely sunny day back in 1992. I was in the back garden hanging out the washing when I was startled to hear a tornado coming up the side of the house. I ran back inside, to find an ashen-faced Doug Randall looking obviously shaken.

Doug was at the time the Man from Marantz, and had brought down the company's Audio Computer for me to try. I'd left him to set it up, and he'd pressed the wrong button, putting high level white noise through the system. And I mean high level. The speakers concerned were Tannoy Westminster Royals, horn-loaded 15-inch drivers with a midrange sensitivity in the upper 90s, and the NAP250 power amp had sustained full hard clip for several seconds.

That was my first encounter with an attempt to equalise the sound balance of loudspeakers in rooms. I don't think Marantz marketed its Audio Computer for long, as it was an expensive and complex beast. It came with a microphone and used the white noise to measure the in-room sound balance. It then computed a cadence of precise digital FIR filters in order provide the correct inverse equalisation to give a net 'flat' response and neutral balance.

TOWERS OF STRENGTH

A decade later, the idea of 'room compensation' is back on the agenda, albeit in a rather different – and indeed much simpler – form. I recently attended a conference held by US speaker brand Infinity, and heard about the company's RABOS technology, the acronym standing for Room Adaptive Bass Optimisation System. A couple of weeks later, a Mordaunt-Short Declaration surround sound speaker system came in for review, and this also included a feature not unlike RABOS.

Coincidence? To some extent, but it's also a function of the relatively recent appearance of a new type of loudspeaker, which the Americans call 'Power Towers'. These are three-way floorstanders, in which the bass driver is actually a powered subwoofer, and

they've been a popular feature the US 'Home Theater' scene for the past couple of years.

It's a neat idea, effectively incorporating a pair of active subwoofers into the front left and right channel loudspeakers. You avoid the need to buy and find room for a separate sub, but have to run three separate cables to each main speaker. And there's the bonus that two subs always give smoother room drive than one.

But what have Power Towers to do with room compensation? Infinity's new RABOS-equipped Prelude MTS and Intermezzo models (as well as the Mordaunt-Short MS 502) both have an interesting feature which is particularly appropriate to active bass drive. A similar technique could be applied to other active speaker systems, especially subwoofers, but these designs just happen to be the first out of the blocks.

TURN ON, DIAL IN, TUNE OUT

Infinity's RABOS consists of inserting a tuneable parametric analogue 'notch-filter' in line with the in-built bass amplifier. With the aid of a supplied test disc and sound level meter, and a little time spent with the supplied graph paper, the customer can first identify the most intrusive mode in his/her particular room, and then 'dial in' the inverse filter required to 'tune it out'. The Infinity approach is quite sophisticated, allowing control over the sharpness (Q) as well as frequency and depth of the notch, whereas the less expensive Mordaunt-Short speaker merely adjusts frequency and depth.

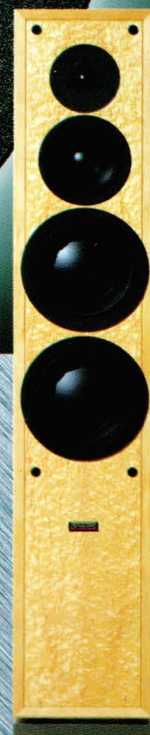
I haven't yet had a proper chance to try this tweak out subjectively, but I did some quick measurements with the MS502, which indicated that the mode canceller does indeed work as advertised. In a good room with smooth and even bass it might be better to avoid even this relatively mild degree of processing, but for those with serious room mode problems, it looks like an elegant solution that's a lot less trouble than moving house.

Paul Messenger knows an awful lot about hi-fi, and can remember when REL was just a subpuppy.

"POWER TOWERS ARE A NEAT IDEA, INCORPORATING A PAIR OF ACTIVE SUBWOOFERS INTO THE FRONT LEFT AND RIGHT CHANNEL SPEAKERS"



WE KNOW ABOUT POWER



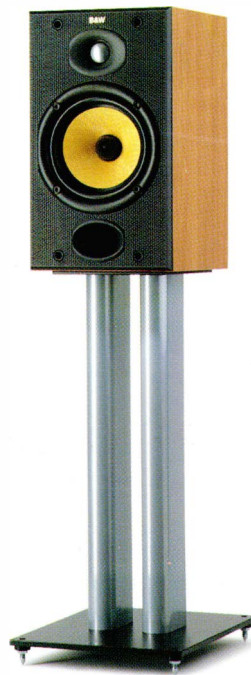
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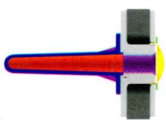


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