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welcome

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verdicts

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



Valve amplifiers look impressive, just like steam engines I suppose, although I shouldn't make that analogy. They aren't purely nostalgic, but have one major strength: sound quality. Don't be influenced by all those who say that valve amplifiers sound 'warm'. That was long ago. Modern valve amplifiers deliver a sound with astonishing dynamic impact, avoiding the bleached, sterile quality of transistor amplifiers. And that is what the new Icon Audio MB845 MkII power amplifier achieves in bucket loads, putting it in a world of its own. You can find out more on P12.

Whilst the world is a'chatter about the forthcoming new Apple baby iPad, we take a look at what it will be facing on p22. Motorola's Xoom 2 tablet is a formidable music player the new Apple will find itself up against. And Sony will re-join the fray soon with their latest tablet. So read about the Xoom 2 to understand how the new wave of tablets will cope with audio, as well as double as a remote control.

It may be tiny and have no power supply, but the Epiphany E-DAC is surprisingly capable. This is a product you may not notice, it is so self effacing, but for just £99.99 you get a full high resolution USB audio convertor (DAC) that shames rivals. Our measurements confirmed its unusual ability. This is a big audio bargain you can read about on p42.

Audio isn't all about big bucks. It can be about getting up early enough on Sunday morning to get to an Audio Jumble before the gannets arrive! That's what Martin Pipe did – and just look at what he saw. The Tonbridge Audio Jumble had some mouthwatering goodies for sale, just awaiting the somnambulant. You can see them on p36. It's enough to make me buy a tent!

As always we have a great selection of interesting products for you in this edition, from old to new, from cutting edge to traditional, They all bring music to your ears, wherever you are. I hope you enjoy reading about them.

Noel Keywood, Editor

testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

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

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

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

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



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DENON MINI SYSTEM

Denon has announced the 65W CEOL N-8 mini-system featuring embedded Spotify, a built-in Wi-Fi antenna and FLAC HD up to 192kHz/24-bit which is controllable via the new Denon Remote App for iOS and Android devices. Apple devices can be connected either by the integrated iPod dock (30pin connector), the front USB or by AirPlay. Music on a PC, Network Attached Storage (NAS) and online music can be streamed via DLNA 1.5.

The system can be expanded via the digital or analogue inputs by connecting to a TV or set-top box. The built in FM tuner with RDS and CD drive is added to a network receiver (RCD-N8) and speakers (SC-N8). It will be available in either black or white for £499.99 with speakers and £399.99 without.

Also watch out for the CEOL Piccolo, a lifestyle network music system featuring internet radio, network audio streaming and Wi-Fi. Apple and PC devices can be connected in the same manner as the N-8 and a relevant App is also available. The CEOL Piccolo will be available in either black or white and costs £399.99 with speakers and £299.99 without.

Call 02890 279830 or click on www.denon.co.uk for more information



WILSON BENESCH FLAGSHIP

The Cardinal Loudspeaker is the company's new flagship. Carbon fibre based with advanced composite systems, the curved elements give the cabinet a complex internal geometry to counter standing waves. The Cardinal's footprint is more than twice that of the Chimera, standing 12 inches higher, affording the Cardinal a 65% larger air volume. It is fitted with proprietary Tactic-II drive units and the Semisphere tweeter. Eighteen drive units in total deliver wide bandwidth sound from 25Hz to 35kHz. Mid-range frequencies are handled by two highly optimized upper and lower mid-range Tactic-II drive units. Meanwhile, the Isobaric Tactic formation makes a return in the Cardinal with four Tactic-II drive units deployed. Price is £54,950.

Click on www.wilson-benesch.com or call 70114 2852656



PRIMARE DAC30

The Primare DAC 30 is a fully balanced 24bit/192kHz stereo DAC, designed to work with a hard drive or NAS. Inputs include asynchronous USB-B, stereo balanced AES EBU and three pairs of S/PDIF coaxial and TOSLINK connectors. The DAC30 acts as a bridge between any music system and a PC or Mac. It uses the processing engine of the Primare BD32 universal player to convert and convey very low distortion analogue signals to any pre-amplifier stage via a pair of balanced XLR or single-ended RCA outputs. Price is £2,000.

Click on www.karma-av.co.uk or call 01423 358846

AUDIO RESEARCH LP1

A hybrid stereo phono preamplifier primarily for higher output cartridges, the LP1 has 47dB of gain, useful for higher output (>1.0mV) cartridges. It is a hybrid design utilizing one 6H30 tube, low noise JFETs, custom Audio Research designed power transformer and multiple stages of regulation. There is no overall feedback and it is non-inverting while inputs and outputs are single-ended. The chassis is compact and available only in silver with basic controls. The UK retail price is £1,990.

Click on www.audioresearch.com for more information.



KLIPSCH IMAGE ONE & G-17

Klipsch has announced the new Image ONE Bluetooth and upgraded Image ONE headphones. The Image ONE Bluetooth is the brand's first wireless headphone model. Using Bluetooth (A2DP) and the aptX Codec for lossless streaming the Image ONE Bluetooth features a built-in rechargeable battery (for up to 10 hours of talking and/or music playback) with wired connection still possible via the included 'direct connect' audio cable. Sound is reproduced via a single KG150, 40mm full-range drive unit, with a frequency response of 16Hz-23kHz.

Large controls for controlling playlists and phone calls are located on the right earcup. Lined with professional-grade foam, flat earpads and equipped with an adjustable leather headband, these headphones are available in a black finish with brushed-aluminium accents and compatible with any Bluetooth-enabled device. The Image ONE Bluetooth retails for £199.99.

Maintaining the same acoustics of the current model, the redesigned and updated Image ONE provides listeners with flat earpads and an adjustable leather headband. Simplifying cable design, the headphone employs a single flat-profile cable, for added durability and tangle resistance, that feeds into the left earcup, as well as an all-new flat-folding collapsible design for space-saving storage. A smaller carrying case is provided for more compact storage. The same three-button remote and mic is housed on the cable for full call and music control with Apple devices. The new Image ONE retails for £129.99.

Klipsch has also announced that its G-17 Air AirPlay iPhone/iPod speaker system now supports Wi-Fi Direct, a new technology that will allow users to stream music from their portable devices to the G-17 Air, even when there is no router-based wireless network available nearby.

Available via Klipsch's free set-up App (downloadable from Apple's App store) the Wi-Fi Direct feature allows a single user to stream their tunes from anywhere up to 30 feet away from the G-17 Air. If you move your iPhone/iPod out of range the G-17 Air remembers your device and reconnects when you get back within range. AirPlay operation is also available when you're within range of your home wireless network but if you want to use the G-17 Air while outside, Wi-Fi Direct will prove an extra feature. The G-17 Air is also compatible with Android-based smartphones and tablets when using the Android music player application. It comes with a 3.5mm Aux input and has a USB input for direct connection/recharging of iPhones/iPods (3.5mm and USB inputs cannot be used when Wi-Fi Direct is being employed).

Minimal in size and minimalist in appearance, the G-17 Air features a high-density resin cabinet finished with a 12-step process that produces its piano black, high-gloss lustre. A plain black grille, attached using magnetic clips, is supplied as standard. A stylish tempered dark glass base allows it to be set down on a surface while keyhole supports allow simple wall-mounting. Price is £429.99 Contact www.klipsch.co.uk.



GOLDENEAR TECHNOLOGY

The GoldenEar Technology range of speakers is now available in the UK. Incorporating stereo pairs and low-profile multichannel home theatre sets, the range includes specialised floor, stand, surround and subwoofer systems featuring proprietary driver technologies.

Prices include: Triton Two, £3,000; Triton Three, £2,000; Aon 3 £1,000; Aon 2 £800; ForceField 4, £750; ForceField 3, £550; SuperCinema 50 system, £2,750; SuperCinema 3 system £2,050. Call 01423 358846 or type info@karma-av.co.uk for more information.



ARTsa

A new flagship stereo power amplifier from Conrad-Johnson design, known as the ARTsa Stereo Amplifier, is the stereo version of the ART mono-blocks. The new ARTsa Stereo Amplifier is an all-valve amplifier housed in the same package as the ART mono-blocks. It features essentially the same circuit (the M8080 single triode is replaced by a 6189 twin triode to provide voltage gain for both channels). Using four pairs of KT120 output tubes, the ARTsa produces 140W of power per channel. There is extensive use of the CJD Teflon capacitors, Vishay resistors throughout the audio circuit and related power supplies. Price is £18,500. Call 020 8948 4153 or click on www.audiofreaks.co.uk for more information.



NEW CHORD DAC

Chord has launched the latest version of its flagship DAC, the QBD 76 HD. The new QBD76 HDSO now includes DSD-over-USB playback, handling up to 192kHz. The HD USB input uses a high-speed data connector (where the QBD 76 once featured a Bluetooth aerial) and a USB 2.0-certified full data rate cable is supplied to allow connection to a computer. The existing USB input can be utilised for CD-quality playback, giving the option for two simultaneous USB connections for both high definition and standard-definition playback from the DAC at the same time.



The design of the QBD76 HDSO, from the digital input to the DAC outputs, has been created using the latest generation of field-programmable gate array devices (FPGA), now with 1.25 million gates. The FPGA handles the switching of S/PDIF inputs, all digital S/PDIF decoding, digital PLL, RAM buffer controller, WTA filtering and the 5th-generation Pulse Array DAC. All of these functional blocks are designed at the gate level.

The HD USB input uses its own separate FPGA and features asynchronous USB technology, isolating the digital clocks from the computer. Each sample rate clock is generated discretely using highly accurate crystal oscillators for optimum performance and ultra-low jitter performance. Proprietary USB driver software is provided, removing the restrictions of current operating system audio playback. It also gives very easy set up and sample-rate selection from 44kHz to 192kHz, allowing for upsampling of standard-definition music.

Owners of selected digital Chord Electronics products can now upgrade to include DSD decoding over USB. Compatible products include the Red Reference (MkIII) and Red Standard CD players and the existing QBD76 HD DAC. Existing owners can return their

units to their local Chord dealer for a factory upgrade. The process includes installing the DSD components, installing and configuring the software, all labour costs, testing and burning-in and, finally, shipping all for a cost of £1,440. Price of the QBD76 HDSO is £4,995 Call 01622 721444 or click on www.chordelectronics.co.uk for more information.



ETON RUKUS

The Eton Rukus can wirelessly stream music from any Bluetooth-enabled smart phone, tablet or computer via stereo speakers. It's lightweight with an integrated handle. The Rukus features an E Ink display that offers low-power, is readable in direct sunlight with a 180-degree viewing angle and is powered by an AC adapter or AA batteries. Price is £99.95 but it's also available with a solar panel at £149.95. Click on <http://www.mailwright.com/t/r-kjmbt-trhltkill-ji> or ring 023 92 313090

CRESYN AXIS

The Axis headphones feature a tri-fold mechanism, within a flexible aluminium construction that folds to pocketable size. The rear section of each ear cup is also fashioned from aluminium, to prevent sound leakage, while soft ear cushions and size-adjustable sections on either side of the headband are included for a secure and comfortable fit.

Featuring a large (40mm) driver, the Cresyn Axis is available in two versions: the C555H and C555S, the latter incorporating a microphone for making and receiving calls when used with a phone. The Axis C555H fetches £39.99, while the Axis C555S is £5 more. Both offer a choice of silver or black ear cups and come supplied with a protective carrying pouch.

Contact: www.iheadphones.co.uk



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Series

Mission loudspeakers have always been known for their elegance and stunning performance, both in critical listening tests and for the Mission iconic style. Aiming for perfection in musical communication and in the design aesthetic, the new SX Series speakers achieve a level of sonic accuracy and realism that completely fulfills their Mission heritage.



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World Radio History



Pioneer SC-LX86



Pioneer SC-LX56



Pioneer SC-2022

PIONEER'S HIGH-END AV RECEIVERS

The company's new AV receivers include three 9.2 Channel models, the SC-LX86 (£2,200), SC-LX76 (£1,700) and SC-LX56 (£1,300) and the 7.2 Channel SC-2022 (£900). The new line-up employs Apple's AirPlay, DLNA 1.5, Windows 7, internet radio, PC setup control, Advanced MCACC auto-calibration, multiple HDMI inputs and Pioneer's iPad, iPhone and iPod Apps including iControlAV2012 and Air Jam.

The SC-LX86 and SC-LX76 have been sonically tuned at AIR Studios while the top three models are all THX certified and the SC-2022 is the first Pioneer unit at that price point to incorporate Class D Technology. Click on www.pioneer.co.uk for more information.

BEL CANTO USB LINKS

Bel Canto is about to launch three new Asynchronous USB Link Converters; the entry-level mLink (£300), the uLink (£550) and top-of-the-line REFLink (£1,350). These new USB Link Converters isolate the music signal – and clocks – from the harsh, noisy electrical environments of computers and music servers. The new Bel Canto Link Converters take the USB output of your computer and deliver low jitter S/PDIF for your favourite DAC. All three USB Link Converters feature native MAC USB 2.0 compatibility, a custom Windows USB 2.0 driver and operate at 16- or 24-bits at 44.1, 48, 88.2, 96, 176.4 and 192kHz on a proprietary 500MHz DSP Core.

The mLink features Dual Low Phase-Noise clocks, galvanic isolation, USB Bus Power LC filters and local regulation. The uLink includes dual ultra-low phase-noise clocks, galvanic isolation, USB bus power LC filters and local regulation while the REFLink includes dual ultra-low phase-noise clocks, two-stage galvanic isolation, dedicated LNS (Low Noise Supply), full e.One chassis and front-panel display and is native Mac USB2.0 compatible. Click on www.belcantodesign.com for more information.



BUD FRIED TOWER

Fried Audio has announced the Bud Fried Tower loudspeaker, the first in a new series of Bud Fried designs. The Bud Fried Tower is a slim, floorstanding loudspeaker, incorporating a transmission line design for extended bass. The three drivers are arranged vertically in an MTM configuration, with a 20mm, ferrofluid-cooled Hiquipon OW2F tweeter and two 178mm Peerless Exclusive midrange/bass drivers. The enclosure is a mass-loaded, quarter wave transmission line while the 114cm tall tower has a 216mm face and 355mm depth. Available in ten wood finishes, the Bud Fried Tower is available now. Price is \$2,995. Click on www.friedaudio.com or call 001 248 342 7109 for more information.



m Power

Icon Audio recently updated their fabulous MB845 MkII amplifier to 'm' status. Nothing to do with M16 or that famous German car, this m less glamorously stands for meter. Or perhaps its meter is glamorous? Noel Keywood finds out.



A long time ago I heard what a big triode valve amplifier could do when we designed and built one at World Audio Design. It used 211 transmitter valves that ran at frightening voltages - and it sounded awesome!

That's why I suggested to David Shaw of Icon Audio that if he wanted

a hot amplifier, this was the way to go. Only I prefer the sound of the graphite anode 845 over the 211. That's what he used and now, some four years later, here is the third iteration of Icon Audio's MB845 amplifier, the MB845 MkII m that produces a quoted 110 Watts per channel.

Originally priced at a very

reasonable £2500 per pair, these monsters have now floated upward in both specification and cost to £5999.95 per pair. The first model produced 65 Watts at 40Hz, the model here manages 100 Watts at 40Hz. Our review sample was a David Shaw Signature version costing £7149.95, fitted with Shuguang Treasure CV-181 and Full Music 6SL7

valves, and Jensen copper foil, paper-in-oil capacitors.

Being on its second update I assume the MB845 has been a success for Icon Audio. And it deserves to be, for I've been using the amplifier for review purposes ever since it appeared in 2009 and it remains as awesomely capable today as it ever was. This is one of the best amplifiers available, capable of shaming most else, so even though it is not the bargain it once was, it remains competitive. It also remains a rare breed: there are few 845 amplifiers around.

The MB845 MkII is built in mono block form to make it usable in the home. Each amplifier weighs 33kgs and is a two-person lift. Most of the weight lies in the two massive transformers. Dimensionally, each chassis isn't impossibly large, measuring 24cms (10in) wide, 57 (22in) cms deep and 28cms (11in) high. They sit on the floor nicely, either side of a rack, or close to the loudspeakers. And as our pictures show, the thoriated tungsten filaments of the big 845 triodes glow bright orange, like mini lighthouses. These are amplifiers you'll see and enjoy seeing. They are nothing short of breathtaking to look at, a real visual statement.

Happily, it's not a hollow statement. Delivering a measured 100 Watts right down to 40Hz, meaning low bass frequencies, the MB845

"to sit in front of the R500s with Nigel playing Vivaldi's 'Spring' was joyous"

MkII is very powerful as valve amps go and can drive any loudspeaker to enormous volume. There are 8 Ohm and 4 Ohm taps for loudspeaker matching and I used the 8 Ohm tap, as it has a faster sound than the 4 Ohm tap, something I will explain later.

Icon Audio have done a great job in keeping the MB845 MkII 'sensible'. It does not use 300Bs as driver valves, because they are hideously expensive. It uses 'fixed bias' for maximum power, but bias adjustment metering is now on-board and relatively easy to do. Yes, 'fixed bias' means you have to adjust bias every now and then, when the needles on the meters move out of the black area, but it is just a case of twiddling adjusters accessible from above – no need to undo anything. In fact, you must not undo anything as the power supply produces 1500

Volts, but there are no exposed anode top caps or such like. It's still best if the cat doesn't get too close and those removable top covers prevent children touching the hot glass envelopes.

The rear panel carries an unusual sensitivity switch that alters feedback. Icon Audio recommend it is set at Low (L) for lowest distortion and highest damping factor. I agree with this; it does offer the best real world compromise. Set to High (H) sensitivity increases (450mV), and both bandwidth and distortion worsen, but only by a small degree.

High has two benefits: it increases gain, to better cope with a low output Phono stage for example. And it also offers a slightly more relaxed and spacious sound. The biggest subjective disadvantage is that bass becomes softer, even woolly. However, this happens only with loudspeakers that are not well damped acoustically. I have used High in the past to energise bass of an over-damped near-wall mounting loudspeaker, so what you encounter when you flick this switch, apart from a sudden change in volume, depends mostly upon the loudspeakers you are using.

A standard input sensitivity of 1V means any preamp can be used, if you need a preamp that is. Silver disc players produce 2V maximum so a passive volume control will do, or a transformer ('magnetic') volume

control or a normal valve preamp such as the LA-4 MkII from Icon Audio.

I didn't use any of these, but a NAD M51 DAC with inbuilt 32bit resolution volume control. This means as volume is reduced distortion does not rise. It allowed me to adjust volume by remote control and avoid intervening preamp circuitry that could affect the sound.

The outgoing MB845 MkII had a press button front panel power switch. The new 'm' version uses a small, light action toggle switch on the left side of each front panel. Flick it down and a strong glow immediately bursts forth from the 845 valves as they light under the initial current surge. The meters light orange too. It all looks traditional, but purposeful also. There are no accompanying noises, like the 'thrum'



Get the needle into the black and bias is correct, it's as simple as that. Tweaking bias on this 'fixed bias' amp is quick and easy.

Our David Shaw Signature version had, at front, two Shuguang Treasure CV-181 driver valves with internal black High Polymer Carbon Compound glass coating that reduces secondary emission. At centre is a Full Music 6SL7 triode preamp. These valves have d.c. heaters to reduce hum.

At rear sit Icon Audio branded 845Bs, with their graphite anodes.

I get from my big 300B amplifier, nor any clicks, pops or bangs from the loudspeakers. The MB845 MkIIs start silently so the timorous will feel no need to flee the room. The meter switch at right is a three-position unit with Up and Down positions showing bias, whilst Centre shows output. The linear voltage scale means the needle rarely gets past 10% even when running loud, but it does reach 100% at full output. I could not get close, even running intolerably loud, but then it is difficult to use 100 Watts from any amplifier unless the loudspeakers are very insensitive.

Measurement showed flat frequency response with the 8 Ohm tap but treble loss of -3dB at 20kHz on the 4 Ohm tap, an odd situation probably explained by feedback being taken from the 8 Ohm tap. The MB845's output transformers are made large to handle bass power, feedback correcting for treble droop due to distributed capacitance and leakage inductance in the windings.

In use with KEF R500 loudspeakers, I subjectively preferred

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the 8 Ohm tap for its faster, more incisive sound. However, bright loudspeakers can be tamed by using the 4 Ohm tap and it may well be preferable in some cases. Generally it is best to use the 4 Ohm tap of a valve amplifier because it is more linear when mismatched 'up' by an 8 Ohm speaker than when an 8 Ohm tap is mismatched 'down' by a 4 Ohm speaker. Power is less of an issue because so much is available.

So although the big MB845 MkIIms may look a bit scary, they are perfectly normal and fear free in use. I have been using them without any problem for years.

SOUND QUALITY

As I explained in my first review of the Icon Audio 845 (Jan 09 issue), a thirty minute warm up period is needed before they really shine, but then this is common with valve amps. I've always been aware my World Audio Design 300B amplifier sounds best after the same period. I fed the mono blocks direct from an NAD M1 DAC fed from a Cyrus CDt transport. Loudspeakers were KEF's impressive new R500s, in for review and Quadral Aurum Wotan Vllls.

Big 845 graphite anode valves deliver massive dynamics if they're used in the right environment and what you get with this amplifier is just that – the right environment. Massive output transformers able to deliver in excess of 100 Watts make the Icon's MB845 MkIIms amplifier sound monstrously powerful. Think pile driving bass power and thunderous midrange dynamics too; everything just jumps out of the loudspeakers. I remember a friend buying his first valve amplifier, a Audio Research VS155, and he was shocked that it was more dynamic than transistor

amplifiers. The Icon Audio MB845 MkIIms is one of the most dynamic valve amps on the market today. But it wraps an iron first in a velvet glove; its vast reserves of power propelled Hugh Masekela out at me singing 'Stimela', his whoops and shouts stabbing out of the KEFs to hit me hard. Backing singers were arrayed densely between the loudspeakers, forming an intense backdrop. Masekela sounded full bodied, his voice richly textured as he sang about working in the mines of Johannesburg, and the "funky, stinking" living conditions of the workers, a tale that resonates again today. But whilst the MB845 MkIIms are deliciously forceful they are smooth and treble seems almost absent, it is so much a part of the sound. That's not to imply the MB845 MkIIms sound warm; they do not. Their force continues up through the upper midrange, so when Masekela ends Stimela with his impersonation of a hissing steam train his sibilants stung me, they were so strong.

Like all valve amplifiers the MB845 MkIIms set up a huge sound stage with a glorious sense of depth. Roger Waters' guitar notes floated through a cavernously space as he sang 'Amused to Death', a quality that sets an amplifier like this ahead of most thermionic competitors and in a different league to any transistor amplifier.

There was so much power available I had to spend a Sunday morning listening at high volume, when our office building was empty. No good doing this at home because my neighbours wouldn't stand such levels, even though I am on good

terms with them! And with the sensitive KEFs I couldn't find the upper volume limit. Huge drum beats shook our office listening room, staking out a mournful beat behind Mercedes Sosa singing 'Misa Criolla' and the supporting choir was vast in scale, filling our room. Combining scale with power, the MB845 MkIIms are expansive to a degree others struggle to approach.

In spite of their relatively high damping factor of 10, as valve amps go, the Icons sounded a little overblown at low frequencies with the KEF R500s so I used the supplied foam bungs to improve bass damping and remove low bass overhang. This is a drawback with all valve amplifiers, mostly with low or zero feedback designs. Modern loudspeakers are optimised for solid state amplifiers, not valve amplifiers. Commonly, acoustic damping must be increased to compensate for the low electrical damping a valve amplifier applies, but it isn't a difficulty. Ported reflex loudspeakers are tuneable in this regard and happily KEF supply a two-part foam bung for the R500s that did the job nicely. Then the Icons thundered their way through tracks like Dadawa's 'Canton Story' and Lady Gaga's 'Monster'. Because they are so utterly rich and smooth it was easy to just wind the volume to huge levels and sit back and enjoy the fireworks.

Surprisingly perhaps, this seemed to apply more to Nigel Kennedy's violin than the subsonic synth lines behind Monster. To sit in front of the R500s with Nigel playing Vivaldi's 'Spring' was joyous. The scale of the performance, its fast pace and its



At left is the Sensitivity switch, with H and L positions. Icon Audio recommend it is set in the down position to L, that gives most feedback and lowest output impedance (best Damping Factor).

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2010

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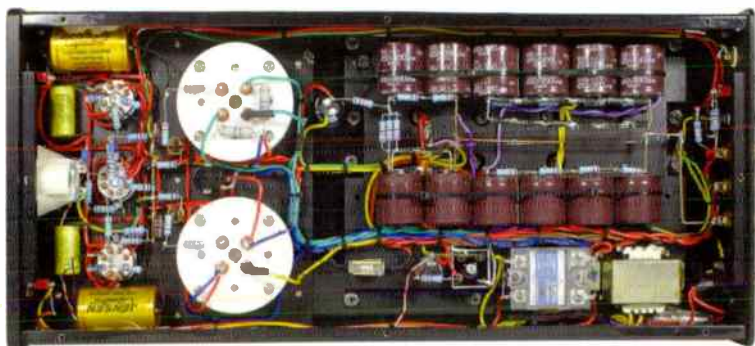
2010

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Two chokes at bottom right enable the CV-181 drivers to swing enough volts for the 845s.

sunny demeanour all flowed from the R500s with a gusto that was impressive. That made the Icons very emotive, I realised. Their dynamism and pace put them at a polar opposite to big transistor amplifiers that so commonly sterilise these properties. The Icons played Nigel beautifully; I heard right into every fine nuance of what he was doing and was informed of the way he so skillfully conveys emotion. Perhaps I need to note that these amplifiers have no screech or harshness to them; big 845 triodes are the very peak of perfection in this area, having a meatier, richer yet equally smooth

delivery as 300Bs. Horns blared out strongly in Tchaikovsky's 'Marche Slave', whilst violins danced behind them as the orchestra beat out the military theme with thunderous scale. It was almost breathtaking as the pace gathered toward the momentous finale, which the big Icons managed with majesty.

Finally, the tuning package of premium quality valves and Jensen capacitors focusses the sound and adds a dark smoothness. I took to Jensen capacitors long ago and have always used them for their firm, damped sound. The valves also bring extra focus and clarity, lessening

problems such as microphony and secondary emission off the glass envelope.

CONCLUSION

If you want to enjoy music on a huge scale these are the amplifiers to go for. Both sound staging and dynamic punch, right up through the midband even, are unequalled. What the 845 valves bring – and I think this is important – is an intensely smooth but dense quality that gives singers, for example, a sense of body and scale that is superb; only a 211 comes close. Paralleled KT88s, 6550s or KT90s do not have the same quality. The MB845 MkII is not just a big valve amplifier, it is a big 845 amplifier.

The Icons maintain an easy grip on pace as well, but their huge bass power is not matched by the icy grip of a solid-state amp so loudspeaker matching must be given thought and attention. Well damped (acoustically) loudspeakers are needed, but modern ported floorstanders with foam bungs, especially two-part bungs, suit. Partnered suitably, the MB845 MkIIms impress me today as much as they did in 2008. They're a great way to enjoy music.

VERDICT

Smoothly powerful valve amps that set standards in what is (just) possible within the home. Awesome.

ICON AUDIO MB845 MKIIM
SIGNATURE £7149.95/PAIR

Icon Audio
+44(0)116 2440593
www.iconaudio.co.uk

FOR

- powerful dynamics
- smooth
- expressive

AGAINST

- weight
- heat
- adjustment

MEASURED PERFORMANCE

The MB845 MkII produced 105 Watts into an 8 Ohm load and 100 Watts into 4 Ohms so the secondary coupling efficiency is good. This is a lot of power for a valve amplifier and demands big output transformers for there to be enough iron to avoid magnetic saturation at low frequencies. The amplifier swung a full 100 Watts at 40Hz without difficulty (1% distortion limit) so there is plenty of power bandwidth. It also swung full output at 10kHz.

Using the Low sensitivity setting (L) as recommended distortion levels were low in the midband, just 0.07% second harmonic at 1kHz and 1 Watt output, rising to 0.5% second harmonic at full output (-1dB). Low frequency distortion (40Hz) measured 0.5% at 1 Watt and 0.6% just below (-1dB) full output so there will be no bass doubling, a lightening of timbre.

Results were slightly better from the 4 Ohm tap, driving either a 4 or 8 Ohm load so as usual this tap is a good option, as most loudspeakers now use 4 Ohm bass units. The only minor peculiarity was a slow roll down in high frequencies when using this tap, not evident when measuring the 8 Ohm tap. Frequency response from the 8 Ohm tap was flat to 20kHz but a slow roll off started above 8kHz from the 4 Ohm tap. In use it may well have a slightly warmer sound, but this will depend upon the impedance of the loudspeaker, 8 Ohm 'speakers suffering less roll off than 4 Ohm models, to be expected from an inductive source.

Damping factor of 10 was measured with the 4 Ohm tap, falling to 5 with low feedback (High sensitivity). The 8 Ohm tap, with its

greater number of turns and output impedance, had a lower damping factor that measured 6. As valve amps go these values are reasonably high, especially 10 from the 4 Ohm tap and will audibly exert better bass control than valve amps with a Damping Factor of 2 or less.

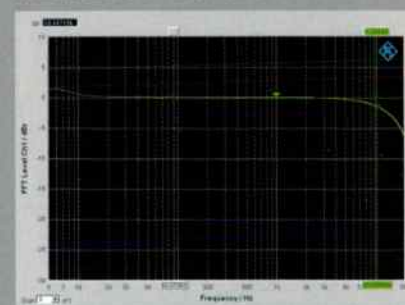
Sensitivity was normal at Low, measuring 950mV for full output, and 450mV at High, with less feedback applied. Bandwidth reduces and distortion rises with less feedback as expected, but not to any great degree. Subjectively, reducing feedback on a valve amp makes for a more open and easy sound, if one seemingly a little less tight and controlled. A complicating factor here is the acoustic damping of the loudspeaker; bass heavy, under-damped speakers will wallow with a low damping factor amp of 2 or less.

The MB845 MkII remains a very powerful, fixed bias 845 amplifier. With massive bass power and a relatively high damping factor it will have the

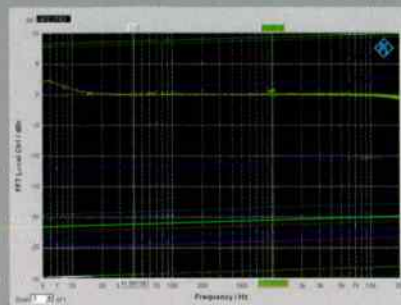
enormous kick of its predecessor, plus the big lush sound of the graphite anode 845 valve. NK

Power	105watts
Frequency response	10Hz-20kHz
Noise	96dB / 0.8mV
Distortion	0.1%
Sensitivity	950mV
Damping factor	10

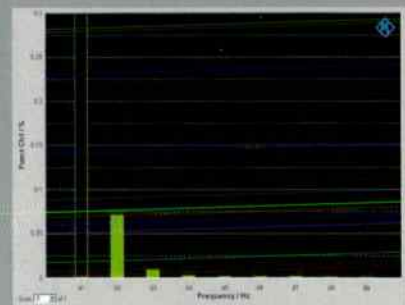
FREQUENCY RESPONSE 4 OHM



FREQUENCY RESPONSE 8 OHM



DISTORTION



Dual edition

Tannoy's Revolution DC6T loudspeakers were already highly-regarded. Can their new Special Edition model add anything to the mix? Jon Myles finds out.



You have to give Tannoy credit. They're not ones to rest on their laurels. It was only last November that the Tannoy Revolution DC6T bagged a glowing five-star review in *Hi-Fi World*. But now the company has gone back to the drawing board to try to sprinkle some added magic to the design. Hence the Revolution DC6T Special Edition.

So what's changed from the original? At first glance you might think not much. It's still a 100cm x 31cm x 28cm (h/w/d) rear-ported speaker with sloping sides to reduce standing waves. But look closer and you'll discover some big changes have gone into the Special Edition update.

First – and most importantly – Tannoy has fundamentally changed the drive units. The company's famous dual concentric driver – which places the 25mm tweeter in the centre of the mid/bass cone – is still present and correct but it's a completely redesigned unit. As is the lower bass driver. Both 150mm units now feature double magnet assemblies which are claimed to give crisper response, improved transient attack and greater dynamic range. The crossover has also been tweaked with upgraded components.

Finally, the Special Edition comes with a much improved plinth which is actually a joy to use – and that's not a phrase you read often.

It's similar to the design used on the more up-market Precision range and includes spikes which can be adjusted from above with the supplied Allen keys and a machined thumb wheel which then locks the whole thing securely in place.

It might sound a minor feature but actually adds a touch of class to the whole package – which is available in just the one dark Espresso finish. All these improvements come at a cost – the new SE will set you back £999 compared to a current price of £850 for the original DC6T. So, the only question remaining is: is it worth the extra investment?

SOUND QUALITY

No doubt about it – this really is a very special loudspeaker for the price. If the



original Tannoy Revolution DC6Ts were good the Special Edition adds a touch of refinement that takes the whole package to a complete new level. Right from the off these speakers impress with their combination of spot-on rhythm, timing and musicality allied to a great sense of mid-band detail.

The Kronos Quartet playing Steve Reich's 'Different Trains' highlights their strength. It's a recording which can sound muddled and harsh at times – but not here. The sampled vocals are crisp and clear while the violin interplay underlying the track retains the tension which makes the whole piece work so well.

Move on to Valery Gergiev conducting the Kirov Orchestra in the Rite Of Spring and the same fundamentals apply – the DC6T SEs produce a level of musicality which immediately makes you sit up and take notice.

There's a great sense of timing that brings out the best in the piece – adding just the right edge of drama to the proceedings.

There's no doubt the Dual Concentric driver helps in soundstaging – rooting images firmly and precisely in the air between the speakers.

Try spinning something a little more raucous and the Tannoy Revolutions continue to impress.

The Buzzcocks 'Singles Going Steady' collection is classic punk-pop – but on the wrong speakers the rhythm guitar can sometimes blur into one-note territory. Not here; the Tannoys do a great job of delineating the various elements of the mix.

They also dig surprisingly deep for their size. The powerful bass lines of The Chemical Brothers 'Block Rockin' Beats' positively thundered into the listening room with hardly a trace of boxiness. And despite the bass on offer the Tannoys retain their sense of pace and attack throughout.

Let's be fair here – not everyone will like what the Tannoys do. They don't sugarcoat the music, they don't gloss over faults in the recordings and they are not the warmest speakers on the market.

If that is what you are looking for then there are more than enough other alternatives on offer to meet your needs.

But the Special Edition DC6Ts more than make up for all that with their outstanding sense of rhythm and above-average detail.

Time and again they managed to reveal elements of the music that other speakers simply missed or glossed over – meaning listening sessions lasted far longer than originally planned. Even less-than-

audiophile recordings sound commendably musical – John Coltrane's 'One Down, One Up: Live At The Half Note' being a case in point. The 20-minute tour-de-force of a saxophone solo which opens this legendary recording was presented in all its ragged glory with just the right amount of edge to the music while Coltrane's backing band sounded almost holographic. And this from a recording made more than four decades ago!

But that's the beauty of the Tannoys. They present music with an effortless vitality and confidence that just draws you in time and again.

They also respond well to additional power – sounding better on the end of a Naim Superuniti than the original Uniti. However, with a nominal 8 Ohm



impedance and a claimed 90dB per Watt sensitivity there's plenty of flexibility for partnering amplification.

If possible, though, do take advantage of the bi-wiring option and ensure you give these speakers plenty of room. Hooked up like this and toed-in slightly saw them really give of their best.

CONCLUSION

The Tannoy Revolution DC6T Special Edition is an extremely impressive update of what was an already fine performer. Okay, so it adds another £150 to the price but the money has been spent where it matters most – on improved drive units, a better crossover and a sophisticated plinth arrangement.

For anyone contemplating a £1,000 pair of floorstanding speakers they positively demand an audition.

VERDICT

Extremely impressive loudspeaker. Tannoy have produced another winner here.

TANNOY REVOLUTION

DC6T SE £999

Tannoy

+44 (0) 1236 702503

www.tannoy.co.uk

FOR

- detail
- plinth construction
- good with both rock and classical

AGAINST

- nothing at the price

MEASURED PERFORMANCE

With the updated DC6T SE Tannoy have smoothed frequency response a little. Off axis it now measures flatter across the upper midrange and will sound a little less forward, but also more *svelta*. A smooth response like this indicates lack of coloration and by any standards the DC6T SE is very even and accurate in frequency response terms. The lower midrange has been smoothed too, suggesting natural vocals.

There's some peaking in the bass around 90Hz as before, although it appears reduced in amplitude and this may well be due to stronger magnetic damping from the larger magnets of the SE's updated bass units. The port works as before, extending bass down very low, to 20Hz. This ensures the DC6T SE is able to produce deep bass and subsonics.

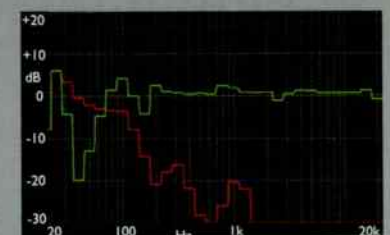
Sensitivity measured a high 90dB from one nominal watt of input (2.8V), the same as the original DC6T. This is high, high enough to make low power amplifiers of 20 Watts or so suitable and 40 Watts should be more than enough to run very loud. Overall impedance measured 5 Ohms and the impedance characteristic was unchanged; the DC6T T is well damped by the port, measurement shows, so bass quality should be good.

A 200mS decay spectrum gave a very even result, free from obvious

colourations, except at 90Hz where the bass unit remains a little 'hot' and there is some bass overhang, but this is not uncommon in medium volume floorstanders tailored to produce strong bass.

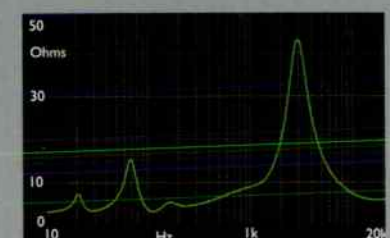
The SE version of the DC6T has been subtly smoothed out over the original and bass tightened a little. NK

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE





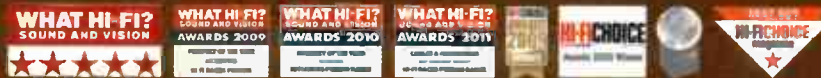
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Here's your chance to win a World Design KEL84 kit integrated amplifier worth £750. Can't build a kit? No worry, World Design will build it for you. Read about it here and answer the questions, at right on this page.

"Long standing readers of this magazine may well remember the DIY supplements that used to be a regular feature of Hi-Fi World some years ago. One of the designs was for the original version of this amp, the KEL84. Several years on, the fundamental circuit design has remained unchanged, with the pentode sections of ECF80 triode/pentodes providing the first ampli-

fication stage. The triode section is used as a phase splitter. Power is provided by a pair of EL84s working in push/pull.

The amp is available in two forms, one with the five line level inputs as in this example (the prize we are offering), and the other with just a single input that can be used as a power amplifier. If purchased as a self build kit, the amp costs £750.00 for this model (the single input unit costing £625.00). Either can be supplied built and tested for another £200.00. There is also the XL option (£60.00) which includes Vishay HT supply capacitors, Schottky Rectifier Diodes for a lower noise heater supply, Soniqs polypropylene coupling capacitors and Soniqs interconnect cable for

the internal wiring.

The only real drawback that I can see with this amp is the fairly low power output of 12 Watts. Allied to efficient speakers like my Kellys it wasn't a problem, but a bit of care in matching suitable transducers is needed. Apart from that I found it to have a very musical heart, and a willing and lucid sound that presented the delights of thermionic amplification in a very persuasive way. If it was alive, I would liken it to a golden retriever, with a sunny temperament and a good dose of bounce and go. Like everything it is not perfect, but for the price it ticks all of the relevant boxes and does so with such a sweet sounding nature that it should win many friends".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 31st November 2012 to:

**December 2012 Competition,
Hi-Fi World magazine,
Unit G4, Argo House,
Kilburn Park Road,
London NW6 5LF**

QUESTIONS

[1] What are the power valves?

- [a] 300B
- [b] EL84
- [c] 845
- [d] KT88

[2] How many line level inputs exist?

- [a] fifty
- [b] five
- [c] none
- [d] one

[3] What is the power output?

- [a] 1kW
- [b] 12 Watts
- [c] Megawatts
- [d] Watson Watts

[4] What output stage?

- [a] push/pull
- [b] bridged
- [c] single ended
- [d] turbo powered

December Competition
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**SEPTEMBER 2012 USHER DIAMOND MINI ONE LOUDSPEAKER WINNER:
Mr B C Jackmann of Maidenhead**



Xoom Control

Motorola's Xoom 2 HD tablet computer plays music and can be a remote control. Paul Rigby checks it out as a remote control and Noel Keywood looks at its musical abilities.

The touch screen computer, popularised by Apple with the iPad, is great for games, movies and playing music. Some, like the Motorola Xoom 2 reviewed here, can stream audio to the hi-fi via a wireless Bluetooth link or through an HDMI cable. The Xoom can even act as a remote control. But does the High Definition moniker apply to audio? And is it any good as a remote control?

Competition in this market is divided between Apple's iOS products and Google's Android OS that sits within a conglomeration of products from a variety of manufacturers including the likes of Samsung, Amazon, Sony and HTC.

The Xoom 2 comes from Motorola Mobility, now owned by Google, as opposed to the equipment manufacturer, Motorola Solutions. In early 2011, Motorola

Mobility produced one of the earliest Android-based tablets on the market, known as the Xoom, the world's first tablet to run Android 3.0 Honeycomb, the first iteration of Android built specifically for tablets. It has now updated the design, handing it the rather prosaic moniker of Xoom 2.

HARDWARE

We reviewed the larger HD form factor Xoom 2 with 10.1in diagonal screen, that weighs 605gms and is just 8.9mm thick, priced around £380. A smaller 8in screen Media Edition is lighter at 388gms – and is available for under £200. The Media Edition is otherwise nearly identical to the HD tablet PC here.

On the rear is the Xoom 2's five megapixel camera and LED flash which is now placed (more logically) in the upper centre of the chassis, with an LED flash alongside the

camera. The camera is generally of good quality, although video output is not the best due to the poor, slow autofocus resulting in hazy footage.

The power button sits on the right-hand side, next to the volume rocker. It is easy to press the power key while trying to alter the volume which may result in lost data. Why couldn't the volume be on the opposite side?

Two speakers are located at the top but out of the way of typical hand holding positions so they should never be accidentally covered. A mini-headphone jack is located just above the camera near the centre of the upper edge.

Along the base of the device, ports include a micro-HDMI that outputs digital audio and micro-USB port that deals with both data and charging. Motorola's dedicated power input is no more, although you'll probably want to stick to the meatier

in-box charger rather than attempt to eke out a charge from phone adapters or a USB cable.

Internal storage amounts to either 16GB or a rather more expensive option of 32GB with no expansion options. Allied with this limitation is the mystery hatch situated along the bottom edge of the chassis which reveals...nothing at all. It should, I think, have covered either a SIM or a form of removable storage but I reckon Motorola came up against a problem of some sort and left it out at the last minute.

The Xoom 2 features an improved screen: a Gorilla-glass coated IPS. Gorilla glass being particularly tough and IPS or In-Plane Switching technology providing better response times, improved colour matching and greater viewing angles. Speaking of which, it's obvious that Motorola have cut corners in the design – literally, because the screen features a chamfered, clipped corner shape. A practical move from the company to prevent the dreaded 'tablet palm' effect where handling a tablet for long period results in the corners digging in and marking the flesh in the palm of your hand.

Looking at the front of the screen, you will notice a bezel of around 13mm on the vertical and around 20mm on the horizontal borders. Some may be unhappy with this but it's actually less than much of its Android competition.

The Xoom 2 screen features the same 1200 x 800 resolution of the original but viewing angles now approach the stated 178 degree mark while the IPS TFT display makes images far more vibrant, although outdoor use can be affected by glare while fingerprints can be very intrusive. In use, I was a little concerned to see a degree of backlight bleed emanating from the corners of the screen.

The engine room of the Xoom 2 utilises an ARM 1.2GHz dual-core processor alongside 1GB of RAM, which is noticeably superior than the original model, being nippier than the reference Samsung Galaxy Tab 10.1, a similarly sized and specced dual-core tablet. Web browsing is very impressive too, as is App loading.

Motorola has included the latest version of Honeycomb (version Android 3.2, to be exact) along with a selection of lightweight Apps including Motorola's own music App, MotoCast, which requires pre-registration but is a relatively painless way to add your collection of music.

Finally, a distinguishing feature of the Xoom 2 is its ability to control your hi-fi. In this case, the IR facility

has been brought to life by the essential App, Dijit.

But what exactly is the App, what does it do and what are its capabilities? Just how useful is the Xoom 2 in a hi-fi environment and is the Dijit App a realistic piece of software for day-to-day use?

And is the Xoom 2 any use as a music player?

REMOTE CONTROL

Starting the Dijit App reveals a splash screen and a region select. Pressing on the Europe button, you are asked if you want to add a remote for a TV, cable or satellite or AV receiver. Bypassing these automated screens takes you to the Adding A Device screen which lists different technology genres: TV, Cable, Video Accessory (such as a Media Player), VCR, Satellite, DVD, Receiver, Home Automation (from B&O remotes to Lutron lights to automated curtain rails from Silent Gliss) and, finally, the hi-fi genres listed as 'CDs' or 'Amplifiers'.

On offer, within the hi-fi section, is a pretty expansive support list. For example, within the amp section you will find Acoustic Energy, Akai, Arcam, Audiolab, Bel Canto, Bryston, Chord, Creative and Cyrus. And that's just your ABCs! The list isn't comprehensive, however, but that was always going to be a problem. Looking at my reference system, for example, there was no Densen or Aesthetix.

The list of equipment is, nevertheless, long and takes a fair while to scroll through. If you wish to immediately find the hardware you are searching for there is an alternative. Above the scrollable list is a Search bar. Pressing on this bar brings up an on-screen keyboard. Typing in 'Rega', for example, filtered out the list during typing. Hence, hitting the 'R' key restricted the list to those names beginning with the letter 'R' and then 'Re' and so on.

Within the amplifier genre, pressing on the Rega name takes you to a new screen that declares that the App had found a remote for a

Rega amplifier. Pressing 'Continue' then takes you to the business end of this App, the actual remote control screen. This is where you should (hopefully) be able to control your equipment. Each screen will look different depending on the piece of hardware and some screens will be populated with more or less controls. There seems to be no particular rhyme or reason behind this and there doesn't seem to be any relation to the number of options present on your chosen hardware. The amount of controls the Dijit can handle



Above, the music player screen. Below, the remote control screen. Buttons can be moved around into any layout.



depends on the current ability of the App.

In this case, to control my Rega Brio-R, I was faced with just four controls. An on screen, animated, rotary volume knob, two inputs plus a mute button. Before I went any further, my first task was to test each with a live Brio-R. The results? The mute button worked perfectly, as did the volume control. The other buttons, labelled Input 1 and Input 2 were a little eccentric. There are five inputs on the Brio-R and pressing Input 1 on the App triggered Input 2 on the Brio-R while pressing Input 2 on the App triggered Input 3 on the Brio-R.



Micro USB socket at left and Micro HDMI multimedia socket at right, together with leads (not supplied).

All was not lost, however. There is a Setting option within Dijit which allows you to edit the controls. A pop-up ribbon revealed more buttons that could be dragged to the remote control screen or immediately removed by pressing on the 'x' icon attached to each icon. Rather oddly, the buttons available included an Input 4, 8 and 10 plus an alternative rocker-type volume control. Dragging the rocker volume control worked well. In fact, it was even better than the rotary option while the Input 4 was a dud, Input 8 triggered Input 4

by most European manufacturers.

To prove the point, I changed the new Rega Brio-R amp to my ancient Rega Mira and the same remote control codes still worked. The Input commands were just as confused as those on the Brio-R, the volume control worked properly, as did the mute but the previously dud Input 4 on the Brio-R did a nice job of triggering the Tape Monitor on my Mira.

My next test was with a Cambridge CD player, the Azur 650C and a Cambridge amp, the Azur

without problem. The fast forward and fast track reverse didn't want to know, though.

MUSIC PLAYER

The smaller, pocketable (just) Media Edition version of the Xoom 2 is positioned as a portable player, much like an iPod. If you think this means walking around in a distracted trance, headphones making you potential roadkill for the next passing bus, then think again. The Xoom 2 has a lot more up its sleeve. Firstly, it has Bluetooth, so you can send music to your hi-fi over a wireless link. That means you can relax on the settee, press Play and music will issue forth from the hi-fi, as if by magic.

If you are suspicious about such new fangled gizmological ideas, an older fashioned wired connection is available via HDMI. This is a High Definition link able to handle music files right up to 24/192; it has no performance limitations. However, the Xoom 2 in current form will play up to CD quality music file only, so HDMI's potential is superfluous as far as music goes.

The Xoom will continue playing whilst it is being used as a remote control too: one function does not negate the other, which happens to be pretty convenient if you are settee bound.

Needless to say, there are a few issues to consider before using the Xoom as a domestic music player. If you want to use the Bluetooth link then you'll need a suitable Bluetooth receiver, like the Cambridge Audio BT100 (£70) I used, feeding a Cambridge Audio Stream Magic 6 digital-to-analogue (DAC) convertor (£700). If this seems extravagant it is because the Stream Magic 6 is basically a High Definition audio device (DAC) that happens to interface with the BT100. There are less expensive ways of turning Bluetooth digital to analogue, like the QED U-Play (£70) but we have not tested them as yet and DAC quality is unlikely to be comparable. But this may not worry you.

Bluetooth works well I find and is not too fiddly to set up, but there is the need to Pair devices where they share security keys – and you don't want to know about this, nor about limited data rate that restricts Bluetooth to CD quality.

A wired HDMI link may be messy, but security and data rate are not an issue as they are with Bluetooth. You need a Micro HDMI-to-HDMI cable and an HDMI input; currently these are common only on AV receivers, not hi-fi equipment. One solution is to use an HDMI de-



Dijit App on the Home screen: selection is easy.

on the Brio-R while Input 10 on the App triggered Input 1. Unfortunately, I couldn't find a method of renaming input buttons to tally with the Brio-R.

You are free to arrange the control buttons in any order on the screen and are provided with subtle yet effective snap-to lines that appear when you are moving each icon. You can even move separate icons to different screens which can be swiped to the left using gesture movements. Hence, my Rega control screen could be swiped to reveal two further, fillable, blank screens.

So why the comparative mess of icons and their functions? Mainly because Dijit doesn't differentiate between individual brand models. It generalises on the type of control codes used by a company as a whole, such as the Philips RC-5 code used

651A. Selecting the amp brought six different remote controls to try. You are encouraged to try each to see which one works best for you and your equipment. I selected Remote 1 and then dragged new inputs onto the screen during the editing phase, to control five of the six inputs, mute and volume. There was a custom activity option available to add new commands but this section was a little temperamental. I thought that I had arranged power on/off commands using the available icons but it failed to work.

Not all remote screens are as wacky, however. The Cambridge CD player was almost a model of efficiency as the power button, eject, play, stop, pause, track skip forward/backward, random play and repeat buttons were all available and usable

embedder like the Atlona AT-HD570 (£166 from www.futureshop.co.uk). I plugged the Xoom 2 into my Marantz SR-8002 receiver and it worked immediately: no pairing, no religion, no security issues. Fantastic! But only if you don't mind a wire snaking across the lounge to an AV receiver.

Bluetooth and HDMI are digital links. The headphone output is an analogue link and you can plug it into the Aux input of your hi-fi amplifier, but I don't advise it. The Xoom's low voltage internal DACs were noisy.

The Xoom 2 cannot play high definition music files. It handles all music file formats except .wma (Windows Media Audio), up to 16bit at 44.1kHz sample rate. This includes .wav, so ripped CDs can be played in virgin form, uncompressed. Our unit played 24bit/48kHz sample rate test files but with 16bit linearity, measurement showed, so there's little benefit in 24bit.

The bundled music player plays from its own library, not from external files or folders. However, there are other music players and PowerAmp appears popular and more flexible, although I did not try it.

A MotoCast import App must be used to import music from Mac or PC. It imported .wav files from iTunes on my Mac, but refused to import .aiff files, as preferred by iTunes, which was unhelpful to say the least. MotoCast also seemed to take precedence over an Android file transfer programme that refused to see the Xoom 2.

Sound quality was a little disappointing. I am used to hearing better quality from CD rips these days than the original CD, due to jitter reduction from re-clocking. The effect is to smooth the sound, reduce glare and add a certain svelte quality that CD typically lacks. This is, however, when playing from a high speed Flash memory USB key, a LaCie Whizkey, through a Naim or similar high resolution media player that measures far better in the digital domain than the Xoom 2, and costs a lot more of course.

The Xoom 2, through both HDMI

The top carries infra red remote window, next to 3.5mm headphone jack, and a camera.



and Bluetooth, slightly muddled, softened and blurred the sound. So whilst bass lines were reasonably similar to those on the CD, when directly comparing the Eagles "Busy Being Fabulous" for example, vocals and instruments formed an amorphous entity on the stereo stage in which individual instruments lacked sharp focus.

Sound quality was nice enough to provide good entertainment, but a tad below CD and a little bland and unengaging. Classical music was similarly afflicted, with massed strings in particular sounding poorly differentiated. Orchestral scale was well maintained though.

CONCLUSION

The Xoom 2/Dijit combination is a less than perfect remote control option for hi-fi use. The fact that a tablet has an IR option with a free controller App at all, though, is cause for celebration. Such systems can only get better and may, in time, spell the end for specialist hi-fi remote controls.

For now, if you are in the market for a new tablet, you might want to consider the Xoom 2 as a rather quirky universal remote that is a work in progress. If you or a friend has an Android tablet or phone, why not download the free Dijit App and see if your hi-fi gear is on the support list?

Much the same can be said about it as a music player. It provides decent sonic results, but its digital processing is currently too crude to provide real high fidelity. Since a lot of modern digital product gives measured results worse than CD due to crude digital processing schemes, the Xoom 2 is far from alone here. This is a

SPECIFICATIONS
Featuring significant differences between the Xoom 2 and Xoom Media Edition

MOTOROLA XOOM 2
MUSIC: Supported formats: H.264, AAC, MPEG-4, MP3, WMV, H.263, OGG, MIDI, AMR NB, eAAC+, AAC+.
SCREEN SIZE: 10.1inch
BATTERY TYPE: 7000 mAh Li Ion
MP3 PLAYBACK: up to approx. 6 days
VIDEO CAPTURE: 1080p video capture
MEMORY: 16GB and 32GB storage options

MOTOROLA XOOM 2 MEDIA EDITION
MUSIC: Supported formats: H.264, AAC, MPEG-4, MP3, WMV, H.263, OGG, MIDI, AMR NB, eAAC+, AAC+.
SCREEN SIZE: 8.2inch
BATTERY TYPE: 3900 mAh Li Ion
MP3 PLAYBACK: up to approx. 3 days
VIDEO CAPTURE: 720p video capture front camera, 1080p rear camera
MEMORY: 16GB storage option

pity because potentially it is a great way to enjoy music as well as a useful remote control at the same time. At the price though, the Xoom 2 Media Edition in particular is an unusually flexible and attractive music player. The larger screened HD tablet PC costing around £380 is poorer value as a music player, but arguably better as a mini-computer when paired with an external keyboard, if you get along with Android.

VERDICT ●●●●●

A usable, hi-fi specific universal remote control and flexible music player, the Motorola Xoom 2 is well worth checking out.

MOTOROLA XOOM 2

16GB	£380
32GB	£425

+44 (0)870 901 0555
motorola.com/mobility

- FOR**
- IR facility
 - app flexibility
 - app hardware support
 - performance
- AGAINST**
- no .aiff import
 - no hi res audio support
 - distortion

MEASURED PERFORMANCE

Frequency response of the headphone output was flat across the audio band as our white noise analysis shows. Output measured 0.35V maximum and hiss was high, measuring -68dB with a 16bit signal. These are fair results but the internal DAC / analogue output amps are noisy.	Distortion (24bit)	0.04
	0dB	0.6%
	-60dB	
	Separation (1kHz)	66dB
	Noise (IEC A)	-77dB
	Output	0.35V

FREQUENCY RESPONSE

Headphone output

Bluetooth

Frequency response (-1dB, 192kHz) CD 10Hz-21kHz

Results were better via a digital Bluetooth link, frequency response measuring flat to 18kHz with a 48kHz sample rate white noise test signal, as shown. Distortion at 0dB was low at 0.04%. At -60dB distortion was high at 0.6%, but most of this was noise. Ironically, budget all-digital signal transmission channels are often noisy (quantisation noise).

A 24bit tone gave slightly lower noise and better results (0.4%) but this is nowhere near a 24bit system in linearity terms; it is closer to 14bit. Bluetooth has insufficient data rate to carry high bit depth or sample rate signals, CD quality being its current limit. The HDMI output gave similar results to Bluetooth. NK

icon Audio

The New MB30m Single Ended Mono Blocks



designed by David Shaw

*Low Distortion Tertiary
wound transformers*

Shown with upgraded Treasure CV181s, Jensen copper foil in paper and oil capacitors

Absolute Simplicity 27w+27w UL or 16w+16w Triode

In recent times there has been renewed interest in valve amplifiers for their musical qualities. Single Ended* designs are interesting as they strip away a whole layer of components including the "phase splitter" valve, leaving the bare essentials of a valve amplifier to work their magic. But until now the power of many of these amplifiers has been limited to about nine watts unless exotic high power triodes are used, which are out of the reach of many people's pockets. Unless you are using very efficient speakers nine watts is just too low for many modern speakers in an averaged sized listening room.

The recent introduction of the Tung Sol KT120 super beam pentode gave us the opportunity to design a new amplifier using only two valves to obtain power of 16 Watts in Triode or 27 Watts in Ultralinear configuration. Designed with equal emphasis on Triode and Ultralinear this amplifier will provide very good volume levels with most loudspeakers having three times the power than a single 300B valve.

Because the MB30s are mono blocks they each get an independent power transformer, a valve rectifier and a custom designed choke, giving the best possible quality of power. A wide range of operating conditions are available including 8 Ohm and 4 Ohm speaker taps and low and high sensitivity for operation with or without a pre-amplifier. The output transformers are our own LDT tertiary wound type having excellent bandwidth and dynamics, together with low distortion. A built in meter allows a very simple way to check that the output valves are operating at their optimum value and best performance. This will also tell you when a valve is due for replacement.

There are also things we don't include like printed circuit boards and transistors both of which we feel degrade the performance of valve amplifiers.

The MB30 is an ideal match to our MFV (Made For Valves) and new Full Range loudspeakers. See our website for details.

Our four cornerstones are **Quality Performance and Value**. And in the future, **Service** when you need it. In this age of "built in obsolescence" it may be unfashionable to talk about repairs and spares but our commitment to future service means you should be able to enjoy your amplifier for at least 20 years. All of our amplifiers are designed and finished in Leicester they are commissioned and serviced by the people that designed them so you can be sure of our quality control and long term performance. Our new series of "Low Distortion Tertiary" output transformers are the best we have ever made, enabling us to reduce global feedback by about 40%. All our amplifiers are hand made using "point to point" soldering without using printed circuit boards. We are convinced this sounds better. It also allows for easy servicing, upgrades and modifications. High quality components are used throughout.

*Using one output valve rather than the usual two in "push pull".

From £1,799.95 (Complete incl 20%VAT) Upgradeable for more information contact us. See our range of other award winning amplifiers on our website

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Power Up!

It's power cables a go-go, this month, as Paul Rigby reviews three from Mains Cables R Us: No.11, Asylum and Ultimate.

Power cables often sneak under the radar when users are looking to improve the sound quality of their system. They are, however, capable of lifting a hi-fi component to the next sonic level. Here are three from Mains Cables R Us, for your delectation.

First up, and sounding like a top restaurant, is the curiously named No.11, which is terminated with a



MCRU Ultimate power cord

cryo-treated, Furutech FI-11 (Cu) IEC plug. The cable is an oxygen-free copper affair, 2.5mm diameter with a built-in ground loop filter to trap mains noise at the plug end.

In sound tests, playing the vinyl version of Yehudi Menuhin's 'Bruch's 'Violin Concerto No.1 in G minor Op.26', one of the principle aspects of the of the No.11 cable is the apparent reduction in 'distortion' which improved the clarity of the overall performance when compared to the standard cable. Bass was more confident as a result, while Menuhin's upper mid crescendos had a sense of purity that no longer battled with ground noise.

On King Crimson's 'Three Of A Perfect Pair', the cable failed to improve the compressive effects of the upper midrange but it did change how those frequencies were presented. Hence, the vocals featured more space and air while the instruments benefitted from enhanced separation.

Moving to the Asylum, made with Belden 19364 audiophile cable and fitted with a cryo-treated and silver plated Wattgate 320i IEC and MK 655 Toughplug, there are two ferrite rings included to combat radio frequency interference.

The entire presentation on the King Crimson track was now more complex, the instrumentation arranged in an array of layers that made my ear pay far more attention to what was going on. The rhythm guitar became dominant in the mix while bass percussion offered its own informative, multi-faceted, presentation.

Moving to classical and Menuhin's violin solo now sounded like he was integrated into the musical assembly and not stuck on as an afterthought. The extra space between instruments also provided atmosphere and emotion to the piece.

Finally, the rather pricy Ultimate Power Cord cable was tested, terminated with a Furutech FI-50 carbon fibre rhodium IEC plug. The outer sleeving is also customisable in grey, black or blue. Made from ultra pure copper with extensive shielding and a ground loop built in.

In sound tests, and comparing it to the Tellurium Q Blue, the Ultimate displayed a suite of smooth midrange frequencies which, although not quite as incisive as the TQ cable, the classical track provided a sweet presentation that would be ideal for brighter systems that require a little calming. Despite this area of the sonic spectrum verging on a



MCRU Asylum power cord

midrange recess, the cable was very easy on the ear, with no nasty sonic surprises and a decent bass performance.

This was backed up when spinning the King Crimson LP. The bass may not have had the slam of the TQ Blue; the Ultimate rounded off its lower frequencies, but bass did provide a sense of rhythm while midrange, although not quite as informative as the Blue, still performed well, with the lead guitar excelling via its rich midrange output.

CONCLUSION

Power cables are an essential part of building a quality audiophile system because they allow you to truly hear your major components in their full glory. Like any CD player, turntable or amp, cables should be heard at your local dealer – and these examples should all be added to your demo list.



MCRU No.11 power cord

VERDICT ●●●●

MAINS CABLES R US ULTIMATE POWER CORD

£775 PER 1.2 METRE

An ideal cable for the more raucous hi-fi systems out there, the Ultimate Power Cord will tame and smooth.

FOR

- sweet tones
- smooth midrange
- no sonic spikes

AGAINST

- rounded bass
- midrange recess
- price

VERDICT ●●●●

MAINS CABLES R US ASYLUM £65 PER METRE

Offering superb value for money, this cable not only provides sonic balance but also excellent instrumental separation.

FOR

- incisive detail
- midrange smoothness
- low distortion
- value

AGAINST

- nothing

VERDICT ●●●●

MAINS CABLES R US NO.11 POWER LEAD £55 PER MTR

Improve your system's clarity with this cable, it promotes a richer performance from your system.

FOR

- musicality
- low distortion
- bass

AGAINST

- recessed mids

MAINS CABLES R US

+44 (0)7908 056978

www.mains-cables-r-us.co.uk

Little link

Arcam has a long tradition of producing impressive standalone DACs. And its latest £150 rLink model doesn't let the side down, says Jon Myles.

Arcam is on a bit of a roll when it comes to stand-alone digital accessories at the moment.

Its rSeries of products already includes the highly-rated rDAC digital-to-analogue converter, rPAC USB-powered headphone amplifier and the drDock iPhone/Ipod charging unit with audio and video output.

And then there's the top-of-the range £2,000 FMJ D33 DAC which has been impressing people far and wide. So it's clear the company has invested a great deal of time in getting the most from the plethora of digital sources available to music lovers today.

But we really shouldn't expect anything less. After all, Arcam can boast of producing the first domestic stand-alone DAC way back in the distant days of the 1980s.

That aforementioned Black Box convertor was positioned as a way of improving most domestic CD players – and was seen as a bit of a revelation at the time.

Move on to 2012 and it doesn't seem anywhere near as controversial a move. In fact nowadays it feels like there's new digital-to-analogue converters appearing almost every

day.

So Arcam's latest rLink builds on some impressive heritage from the Cambridge-based company. But it also has some work to do if it is to stand out from a crowded field – even at the relatively competitive price of just £150.

PLUG AND PLAY

Before describing what the rLink does do it's best to first explain what it doesn't.

It's clear Arcam has designed the rLink to be as simple to use as possible. Therefore you get single inputs for optical and S/PDIF only with a pair of RCA analogue outputs.

So if you're thinking of hooking it up to a computer, a USB to S/PDIF converter will need to be factored into the equation (more of which later).

Just to complete the no-frills nature of the rLink there isn't even an on-off switch. Power comes from a standard wall wart and once it's plugged in it's on.

Arcam obviously haven't designed the rLink as any form of digital hub for a variety of devices. If that is what you are after the company provides the rDac with more inputs, USB and optional Wi-Fi for around £150 more.

Instead the rLink is a cost-effective one-stop upgrade for set-top boxes, media streamers, game consoles, older CD players and even DAB radio tuners.

What you do get is a digital-to-analogue converter built around the tried and tested TI Burr-Brown PCM5102 DAC used in the company's more elaborate designs.

That means comprehensive sampling rates of 44.1kHz, 48kHz, 88.2kHz, 96kHz and 192kHz (electrical input only, our tests show) at 16 and 24 bits. The circuit de-jitters incoming data to provide a supposedly cleaner audio stream and automatically senses the sample rate.

The unit itself is fashioned from a sturdy anodised aluminium casing which is reassuringly heavy for its size and has a rubber base to prevent it slipping around when in place.

Once hooked up to your source a thin red light on the front of the rLink turns to green when it senses a digital signal.

Finally, all connecting leads are also supplied in the box, which makes a nice change.

SOUND PER POUND

Hooked up to a Sony DVD player and routed into a Naim Superuniti it





Just two inputs: electrical (left) handles hi-res up to 192k sample rate; optical up to 96k.

was immediately obvious the rLink is a serious proposition. On its own the Sony makes a passable stab at CD replay but can sound rather mechanical and unappetising.

With the Arcam device in situ the sound changed appreciably. Underworld's 'AHundredDaysOff' was presented with a wider soundstage, fuller bass and cleaner treble. There was a better sense of flow to the music.

The same effect was apparent playing the Bournemouth Symphony Orchestra's rendition of Philip Glass's Heroes Symphony. Arcam's little rLink let the music ease from the speakers in a much more organic sense rather than sitting there rather dull and lifeless. It's fair to say it exceeded expectations here. You could easily spend £150 on a pair of new interconnects and not get twenty per cent of the improvement this DAC brings.

All of which encouraged me to experiment further. So, I dusted down an old Marantz CD63 from the attic and hooked it up to the rLink. Here there was no doubt yet again. The Arcam kicked the old Marantz – which was no slouch in its day – into something rather special for the relative price. Soundstaging was much wider, Scott Walker's voice on 'Climate Of Hunter' that much deeper, and the smoky jazz of Diana Krall's latest 'Glad Rag Doll' just that little bit more atmospheric.

It's very much a classic Arcam sound which seems to extend across its range – clean, smooth and admirably balanced without any undue emphasis at the frequency extremes.

No, admittedly, it's not like upgrading to a new £1,000 CD player. But this is adding a £150 DAC to a 20-year-old model. And for that alone it has to be seen as pretty good value.

If there's a criticism to be levelled it's a tendency to highlight female vocals with a slightly forward upper

midband – but in the context of price and where the rLink is likely to be used that is being highly critical.

Also impressive was the improvement produced from a Virgin TiVo box. Here speech radio took on a much better clarity and atmosphere with improved stereo separation.

SUITABILITY

There's no doubt Arcam has produced a very good quality DAC in an attractive package here for the price of £150.

But it has its drawbacks in terms of connectivity. With just the two inputs you are not going to be using it as a digital hub.

Instead its benefit comes as an extra link between one piece of equipment and your hi-fi.

Attached to an older CD spinner or even a relatively recent DVD/Blu-ray player the rLink can give a cost-effective way of improving sound quality.

It has all the sample rates you could ask for, a commendable ease of use and comes in a tidy package.

However, the lack of a USB input may be a drawback for some – especially if you are looking to connect to a computer.

Anyone thinking of going down that route with the rLink may be better off taking a look at Arcam's own rDAC with its USB input.

Or, alternatively, invest in a USB to S/PDIF convertor as well (see Hi-Fi World's Group Test April 2012) – potentially adding at least £175 and a few more connections to the whole equation.

But, to be fair to Arcam, they are not positioning the rLink as a do-it-all unit. It's positioned to easily link digital sources to an existing hi-fi without too much complication and with a much-improved sound quality.

The fact that it achieves those goals is a testament to the quality of engineering at work here and the attention to detail.

Add to that the undeniable truth that you could easily spend more on interconnects to get appreciably less performance and the rLink is definitely worth a look if it fits in with your digital components.

CONCLUSION

There's no doubt Arcam know what they're doing when it comes to DAC technology. The rLink is superbly assured and communicative for its price. Matched with a middle-market DVD player it gives a welcome improvement in sound – and even worked its magic on a well-regarded Marantz from a few years ago. It's clear DAC technology has improved markedly in the past decade. If the rLink suits your needs and the feature set is sufficient it is a veritable bargain.



Miniature surface mount components and Burr-Brown PCM5102 DAC.

VERDICT

A smooth, sophisticated DAC at the price. Adds a touch of class to many digital sources but is no one-stop shop.

ARCAM RLINK DAC — £150

Arcam
☎ +44 (0) 1223 203 200
www.arcam.co.uk

FOR

- price
- neat, unobtrusive package
- well-balanced sound
- comes complete with all leads

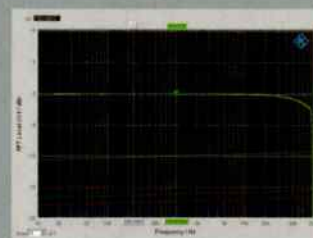
AGAINST

- no USB input
- single optical, co-axial inputs
- Arcam's own rDAC provides stiff competition for flexibility

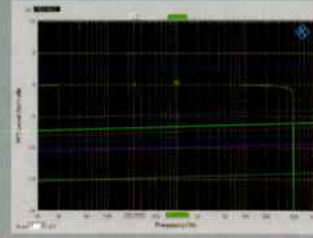
MEASURED PERFORMANCE

Frequency response measured flat to 21kHz with CD and to 48kHz with a 96kHz sample rate digital input via optical or the electrical input. The optical receiver does not support 192kHz sample rate, like many others, but electrical does, giving an analogue frequency response that extends to 90kHz, but is -1dB down at 60kHz.	-60dB	0.09%
Distortion levels were low with 16bit and 24bit resolution PCM inputs, measuring 0.22% and 0.09% respectively, both low values. It is possible to get lower -60dB distortion values with 24bit, down to 0.04%, but the r-Link still turns in a good result. The EIAJ Dynamic Range value measured a high 103dB with CD (16bit) and 112dB with 24bit. Output measured a normal 2V.	Separation (1kHz)	116dB
The rLink measures well all round, giving full 24/192 resolution via its electrical (phono socket) S/PDIF input. NK	Noise (IEC A)	-125dB
Frequency response (-1dB, 192kHz) 4Hz-60kHz	Dynamic range (24bit)	112dB
Distortion (24bit) 0dB	Output	2V

FREQUENCY RESPONSE 192k



FREQUENCY RESPONSE 96k

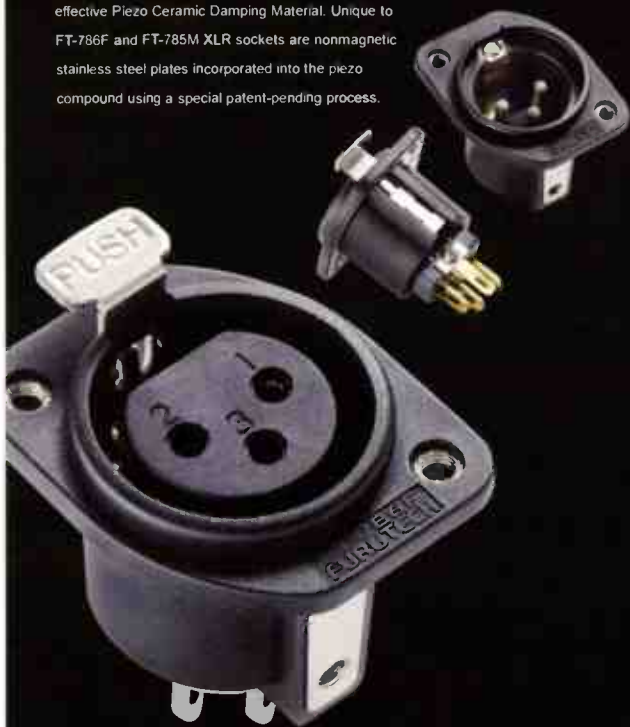


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Ultimate Performance
Ultimate Refinement
Ultimate Luxury

Pure Transmission Principles at their finest!

The new XLR sockets feature α (Alpha) pure copper conductors for minimal impedance and a special nonresonant nylon/fiberglass housing incorporating Furutech' ultra-effective Piezo Ceramic Damping Material. Unique to FT-786F and FT-785M XLR sockets are nonmagnetic stainless steel plates incorporated into the piezo compound using a special patent-pending process.



FT-903 RCAs feature α (Alpha) pure-copper conductor for minimal impedance with a heat resistant LCP (Liquid Crystal Polymer Resin) housing. LCP is a superior compound damping material that is also incorporated into the chassis nut to ensure there are no disturbing resonances. The construction of the FT-903 is patent pending and its design



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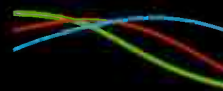
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LETTER OF THE MONTH PRIZE



KEF Q100 LOUDSPEAKERS

Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF Q100 loudspeakers.

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters

A pair of KEF Q100 loudspeakers are on their way to **STEPHEN CONDLIFFE**, Letter of the Month winner in our **NOVEMBER 2012** issue.

Letter of the Month



Sugden A21 SE is a very unusual Class A Single-Ended transistor amplifier. It has gorgeous sound quality but produces little power, so what loudspeakers to use, ask Dave and Debbie?

SINGLE MINDED

My partner and I are confused over how to upgrade our old amp and speakers, a Pioneer A400 and Acoustic Energy Aegis 2 loudspeakers. A Pioneer PL12D/Ortofon VMS20E turntable/cartridge combo will be the last to retire.

We were very impressed with the Sugden A21SE you recently reviewed but don't know which 90dB speakers to audition. We mainly listen to acoustic music and our first choice was the Martin Logan Electromotions at 91dB/6ohm impedance but you advise amplification of at least 50 Watts. Then we thought the Spondor A9 would suit at 90dB/8ohm but your review of last

year advises at least 40 Watts

We realise the issue of amp/speaker matching is crucial and need some help.

Yours sincerely,

**Dave + Debbie
Luton
Beds.**

The Sugden A21SE amplifier is a real beauty. I am almost shocked at how good it is - and it uses transistors! It has the most fabulously detailed sound, one that is dynamic, full of vivacious life and enormously engaging as a result. I continue to use our review sample and am

quietly addicted to it for reviewing purposes, because it makes the most of loudspeakers, due to its sweet tonality.

But you do need very sensitive loudspeakers for a specialised Single-Ended amplifier like this, that produces just 25 Watts. Happily, a stream of really good and appropriate loudspeakers for your purpose have passed through HI-Fi World towers recently.

First came the lovely Epos Elan 35 that sounded smooth as silk, but was whoppingly efficient, producing 92dB from just one measly Watt. At £1200 it is a big bargain.

Then came the lovely Usher Dancer Mini-Twos (£3000) and in this issue we have the Tannoy DC6T SEs (£995). All are efficient floorstanders that suit the A21SE.

Currently under review are a pair of brand spanking new KEF R500 floorstanders (£1500) and they are measuring and sounding very impressive indeed; KEF have returned to utter accuracy, putting the new R500s up with with the best. However, the R500 has a super high technology midrange unit (it's a three-way) so expect great midband lucidity. They will appear in our next (Jan 13) issue.

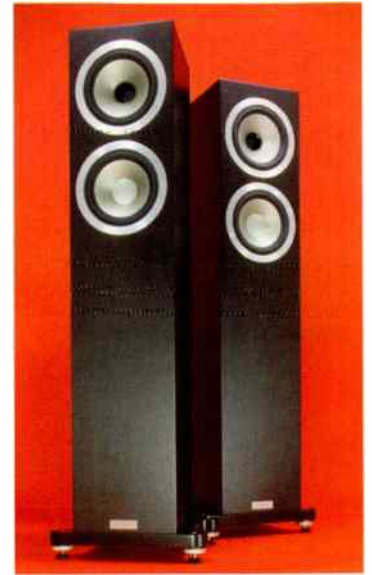
In all then, you are suddenly spoilt for choice! I cannot easily decide between these loudspeakers for you, and you state no budget (Martin Logans are beautiful but more expensive). I hope you can audition from my short list. I know you'll have fun. **NK**



Epos Elan 35 92dB
October 2012 issue



Usher Dancer Mini-Two 89dB
November 2012 issue



Tannoy DC6T SE 90dB
December 2012 issue

Here are the latest floorstanders to hit the market that need very little power to go loud. All of them deliver around 90dB from one Watt, meaning 104dB from the Sudgen's 25 Watts (at 1 metre). Three metres away you will get around 92dB – and that is loud. They are well engineered and accurate, our measurements show, and all give great sound quality.

TAMING DIGITS

I'm wondering if the infamous harsh CD sound dating from the mid 80s is not due to the CD technology of the time, but more to the media of the time. I explain.

Most of the CD releases of the second half of the 80s and of the 90s,



Wishbone Ash album 'Handy' has tape hiss that I removed with Adobe Auditions, says Jean-Christophe Xerri.

were made from the vinyl LPs, or from the analog tapes mastered for vinyl. Which explains why we can hear tape hiss on 'so called' digital recording, or inferior replication of playback through CD compared to vinyl.

After all, mastering is not being done for nothing. In case you have forgotten what mastering is, it is to adapt the music to the medium e.g. for one mix there are made at least three masters - one for vinyl, one for CD and one for radio broadcast, and all three are different.

Back on track: today I've listened to 'Handy' by Wishbone Ash on the eponymous CD album. Immediately the 'tape hiss' annoyed my ears, as well as the so-called digital harshness in the cymbals and the top octaves of the guitars. As the album was on my NAS it took me five minutes to process it through Adobe Audition and to remove the 'tape hiss' and by the same token the so-called digital harshness.

The objective results are that the bass is untouched (up to 150Hz), the mids are -2dB at the highest (1.8kHz) and the highs are -3dB at the highest (4kHz) without my ears noticing it. I know that it is heresy to modify the 'Perfect Sound Forever' CD gives us. But what the heck if I don't like it? The subjective results are that I'm not annoyed by the tape hiss anymore and that the playback is more gentle on my ears (no digititis anymore).

Therefore it took me five minutes of brainstorming, five minutes of processing, and ten seconds of checking to enjoy again 'Handy' by Wishbone Ash. As Adobe Audition allows you to 'batch process' it will take me another five minutes to process the whole album.

Of course, the whole process has to be started from scratch for another album, as different albums have been processed by different mastering engineers, for different companies with different distributors (i.e. manufacturing plants).

But I consider it's worthwhile to do it (it's free as long as you consider that your time is free) compared to the \$ xx,xxx that a piece of hardware can do

for you and a piece of hardware won't do it exactly as you wish.

Best regards

Jean-Christophe Xerri
South Australia

Hi Jean, that is a great suggestion, one I sympathise with. I spend time working with Audacity, the free music editor, changing and creating files for test purposes. Every now and then I also re-balance tracks just for the sake of it. These days it is easy to load the processed .wav file on to a USB memory key and play it on a media player – and the results can be intriguing.

Adobe Audition CS6 costs £300 and is a professional editing suite a bit beyond the understanding of most users I feel. I see the outgoing CSS is being priced at £99 and this looks like better value.

If readers would like to tell us what they use, and how they use it, it would make for interesting reading.

NK

GOING FOR A SONG

I have what I think is a reasonable hi-fi system at home in England (Spacedeck, Croft Valve pre-power, Spondor.) but as I work abroad for most of the year I only get to use it for about six weeks so I thought that I would share my experience of a computer system I have set up in my apartment.

I started with a Cambridge Audio Sonata DVD player into a pair of Wharfedale active Diamonds on Target stands. Having bought a new MacBook

Pro I thought that it would be good to store all of my CDS on it and use it for a source player. Later I read a review of the Matrix Mini-i D-to-A converter which sounded exactly what I needed so I bought one and brought it back.

Now I had remote volume control, a headphone amp, USB input and digital in for the DVD player. Everything is wired to the mains (even at home) using Rowan power cables that I discovered in my local hi fi shop in Basel, Switzerland. They are very good and also reasonable at about £40 for a metre.

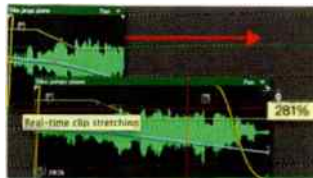
CD ripping is done using XLD, downloaded music is converted from FLAC to wav to burn to disc via xACT and as all files are kept in the finder music section and not iTunes, played with Audirvana plus.

The other advantage of the computer is that I also have internet radio (Venice Classic Radio for classical and Shoutcast for all else) and the resulting sound is actually quite good considering it's not expensive gear.

Now for a question. I have recently started downloading high res music from sites such as Linn and the Classical Shop. Could you please tell me how I can save them to a DVD Audio disc as I cannot find any software that works with a Mac.

Thank you in advance,
Best Regards

Paul Marfleet



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Adobe Auditions has 'sweetening tools' including 'Adaptive Noise Reduction' to lessen tape hiss.

and listened and heard no difference).

As far as I am aware, you cannot now either create or play DVD Audio discs, except with a non-transportable Cambridge Audio or Oppo player (playback only). I am afraid to say silver discs are yesterday. When you hear hi-res files you will understand why. In particular, 24bit resolution enormously lessens distortion and lowers noise – and you will hear this on a decent system. Suddenly, digital becomes a lot smoother, more subtly and richly detailed and has more apparent

KEL84 amp via Linsley Hood preamp (both home kit builds) into a pair of KEF Q900 speakers.

Since fitting the Hadcock, although it suits the London well, I have missed the facility of plug in heads that allowed me to play 78s etc. Upon reading a review of the Jelco 750 arm I was tempted to take a chance and fit one to my 401 but realised the cost would be around £550 by the time a connecting lead was factored in, so I had a look at alternatives. This resulted in me taking maybe a higher risk by purchasing a Stanton ST 150 high-end DJ deck at £405 as this gave me all the cartridge change facilities I wanted, 33, 45 and 78 speeds (in fact up to 117rpm or down to 10rpm if needed, both in forward and reverse!) combined with a very high torque (4.5kgs.max.) Direct Drive motor unit.

It is now up and running and giving excellent reproduction and to my surprise and relief my Decca cartridge is very happy in the Stanton arm, especially as the Stanton unit is very heavy at 19kgs. with good isolating feet.

For me this cross fertilisation between the hi-fi and the DJ world has really worked well and I would encourage anyone with similar needs to look beyond just the hi-fi world (not the mag, which is always most informative!) and into DJ equipment. After all, good reproduction of music is common to both.

William Dudman

**Ealing
London**

Thanks for letting us know about your experiences with this deck William. The ST150 looks much like a Reeloc RP-6000 Mk6 and also like the Vestax in bits at my feet that is made in China (it says on the DD motor). It seemed likely that these all come from one OEM supplier. Their



MacBook Pro had a disc drive (latest versions do not) for ripping CDs and will run high resolution audio up to 24/192. It can feed a DAC through an optical S/PDIF output integrated into the headphone socket (you need an adaptor). Use Songbird to play hi-res files. (picture courtesy of Apple)

Hi Paul. Macs will handle right up to 24/192, even though most people think 24/96 is the maximum. Songbird will play high res files or you can convert to Apple Lossless and load them (i.e. 24/96) into iTunes and play them. Remember to go into the Applications folder, then Utilities and set the Audio/Midi doo-dah to 24/96 output. In a Mac this locks the output rate, so all audio is output at 24/96, even if it was originally a CD rip at 16/44.1, by up-sampling (this does not improve sound quality: I have tried it

depth. CD sounds barren and flat by way of contrast.

A 96k sample rate is fine; 192k sample rate is pushing the boat out a bit (it doubles file size and download time) and as yet I am uncertain it is audibly better in most systems.

I hope that helps. **NK**

DIRECT ISSUE

Until very recently my main analogue disc system comprised Garrard 401 + Hadcock 228 + London Pro (New Decca) cartridge playing into a WAD



The Stanton ST150 DJ Direct Drive DJ deck "gave me all the cartridge change facilities I wanted, 33, 45 and 78 speeds" says William Dudman.



Reloop RP-6000 Mk6 Direct Drive turntable has facilities and arm similar to Stanton ST150. Does it come from the same factory?

similarity to the Technics SL-1200, the turntable that started it all, is obvious. But the motor doesn't look like a Technics item, and its Chinese origin also suggests otherwise. So I turned to our Direct Drive guru, Dave Cawley and he directed me to Hanpin, of China. They originate from Taiwan, according to their history. So this is where all those high torque, Direct Drive DJ turntables comes from. Dave tells me the arm is virtually impossible to change, a pity.

NK

DODGY DAVE?

I notice in the latest issue of Hi-Fi World that a letter has been answered by Dave Cawley of Sound Hi-Fi – and not for the first time. As a long time reader I would like to know if you really think this is an appropriate action for your magazine to take? Surely by sending a letter to you the sender is looking for an opinion based on the experience of the magazine staff who have knowledge of a wide range of products? Looking at Sound Hi-Fi's website it appears that Mr. Cawley has recommended items that he stocks and whilst I certainly do not blame him for doing this, surely you are affecting your own supposedly neutral position by allowing someone to give an answer that will naturally be limited by his own interests?

Sincerely,
J. Lewis

Yes and No is my answer. Yes, his answer was partial and he did recommend his own products, but as they are very good that did not worry me unduly. It was made clear that he was Sound Hi-Fi and this gave readers the chance to make up their own minds.

Why did I use him? The answer is simple: Dave Cawley knows more

about turntables and, in particular Direct Drive - including their electronic servo-feedback circuitry - than just about anyone else in the UK. So I use him for his knowledge and the fact that he gives Hi-Fi World readers an informed answer that is valuable and not misleading.

I admire expert contributors and Dave happens to be one of them. Needless to say, he loves his subject and works hard at it. You have to understand that most reviewers are not engineers and have little or no understanding of background technical issues in many products, and what makes them tick. Specialist listeners like Rafael Todes, and specialist engineers, like Dave Cawley are a mine of information and have prodigious ability – and that is what you get in Hi-Fi World.

On balance I think it is better to provide informed comment, even if it is partial. We have run replies from manufacturers in the past and this attracted no complaint. So I hope your complaint is truly impartial too and not prompted by another manufacturer.

NK

NOT SO DODGY DAVE

Many thanks for publishing my letter in the September issue. Please pass on my thanks to Dave Cawley for his reply.

I have to agree about the mains. Mine looks a little rough but is quite variable. Probably though for a town the size of the Medway towns in North Kent there can be little difference to most power sources across the UK. We have only recently become aware of the subtle way it can affect things and realistically we have never really analysed it except from a voltage point of view in which case it always looks within parameters. With the use of remote power switching by the grids, mains for network traffic, the noise of the solar power systems delivering their 10 pence worth of electricity onto the grid and all those horrible energy saving



Today's Direct Drive turntables are made by Hanpin in China.

bulbs etc it will only get more noisy out there!

On another point entirely, the review of the Burmester 032 suggests an interesting issue. For an amp to be balanced throughout then the way to look at this is actually to view the output stage exactly the same as if it were bridged. The technology is the same. A balanced input with one signal lead 180 degrees out of phase with the other transferred to the output amp requires two output amps to work on those signals maintaining that phase relationship the commoning point being the loudspeaker.

Now unless you have some sort of custom power amp stage that does balanced up to the output transistors (so that's the long tailed pair, current mirrors/sources, class A driver etc) then the only way to balance it right through is with what has been called bridged for as long as I can remember. 35 years ago I built a keyboard PA system using the Maplin MOSFET 100 watt module and their bridging module and have to say that a three way mono active system of that configuration is still something quite impressive to hear. I wonder what happened to that system!

Bridged and therefore balanced output has always had a subtle but impressive advantage to my ears. Many thanks once again.

Regards

Dave Tutt

www.tutt-technology.co.uk

Hi Dave. Yes, bridged does give a balanced output with respect to ground and as you say sound quality does usually seem better. I have thoughtlessly assumed this is likely due to the extra power available, but perhaps not. Perhaps it is due to rejection of common mode interference.

A similar debate exists with balanced outputs and balanced lines. These normally demand the use of 'transmitter' and 'receiver' chips (line drivers) at either end of the line, meaning extra circuitry. But in spite of this, sound quality is usually better. The benefit is a signal line free of earth currents and interference (balanced cables are usually shielded) and it is this that seems to most affect sound quality. So balanced working would seem to hold promise, especially with pickup cartridges – where it is almost never used. Oh well! **NK**

NOISE NEWS

I refer you to my letter published earlier this year in Hi-Fi News re fitting an Origin Live motor to an LPI2. There are photos.

I too had noise problems. I solved



For an amp like the Burmester 032 to be balanced throughout the output stage must be bridged, says Dave Tutt.

this by mounting the motor on the base plate (I use a Mission Isoplat - long before the Trampolin I called it the Underlin). Total silence.

I mentioned it to Origin Live who were very pleasant but not interested. It should be noted the extent the Scottish Firm have had to go to with isolating the motor in their costly (it seems to me) solution. Effectively, I have an outboard motor inboard, within the plinth. It sounds fine to me but it needs someone with golden ears and time to compare the two solutions.

I did not win a pair of speakers with my letter - maybe by describing a solution then this time I will. They would go to one of my children to get them rolling as a new generation in our hobby. Yours,

Dr Guy Goundry

Hi Guy. I don't read Hi-Fi News too often (won't tell you why!) and as you did not send the letter to us we cannot print it. I don't think 'News would like Hi-Fi World reprinting their Letters, even if you do own

Copyright. I will ask Paul Miller, Editor of News, at the next Show, when I am likely to see him, but don't pin your hopes on getting those loudspeakers! **NK**

CABLE COMPLAINT

It's very rare that I feel the need to complain about a review, but what a load of nonsense written by "PR" in the October edition.

"Normally, when you push music through a USB cable, the data, which arrives in blocks, includes narrow bits which represents the high frequency portions of the final music. Within current USB cables, these bits are largely lost because the cable isn't fast enough to cope, the sampling continues but the narrow bits are largely ignored because they are seen as errors".

This has to qualify as the most inaccurate drivel I have ever read. The author implies that a cable that carries a digital signal is analogous to a cable carrying an analogue signal. What nonsense. It would have to be a truly bad (USB) cable that causes data to be



The Origin Live DC motor conversion for a Linn LP12, as reviewed by us from the manufacturer.

Letters On-Line!

You can now read our Letters on-line, from the last issue back to March 2010. That's a treasure trove of information and advice to our readers, as well as a fascinating catalogue of reader's systems and views. There's mountains of buying information, all just a click away on your computer or i-Pad. Have fun!



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World Mail June 2011 issue

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Your experts are -
 DP David Price, editor; NK Noel Keywood, publisher; PR Paul Rigby, reviewer; TB Tony Bolton, reviewer; RT Rafael Todes, reviewer (Allegrì String Quartet); AS Adam Smith, reviewer; DC Dave Cawley, Sound HI-FI, World Design, etc.

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discarded due to errors, so to suggest that this new improved cable works around data loss is once again grossly inaccurate.

I welcome any comment from your reviewer.

Regards,

Tony Rogers

Paul Rigby was quoting Tellurium Q and they declined to comment upon the mechanisms by which their cables achieve such results, as they are subject to a pending patent, they say.

There are a few points to note here though. Whilst 'narrow bits' don't represent the high frequency portions of the music, which is what I think you object to, digital cables can and do affect sound quality. Two excellent letters to us, published in our June 2012 issue, explained how. They are now published on our website at www.hi-fiworld.co.uk – go to Letters / June 2012 issue / p6 (Digital Cables).

So the explanation appears a little awry, shall we say, but that does not necessarily damn the cables or what Paul Rigby heard.

Also, (as I suspect you know) there is no such thing as a 'digital' cable; they are all analogue. And the analogue properties of a 'digital' cable, such as bandwidth and VSWR, affect a digital signal, limiting data rate and producing jitter. USB cables use a simple twisted copper pair, as do ethernet cables, and the twisted RGB pairs in an HDMI cable are able to pass up to 10GB/sec, it is claimed. Look up 'twisted pair' on Wikipedia and you may be surprised at just what you see.

I think it is fair to speculate that a poor USB cable could suffer data loss; technically this is possible. "Narrow bits" exhibit a high rate of change of voltage with time ($\partial v/\partial t$) are are most affected by analogue bandwidth.

So all in all Tony, I believe this was plausible speculation.

NK

LIBRARY

I have my entire music collection in Samsung's Emodio library on my laptop in 128kbps MP3 file format which I use to download to my portable MP3 player. Is there such a unit as an MP3 type player that I would call a hi-fi separate that I can download my music via USB but is part of my hi-fi system.

Regards,

Brian (middle aged technophobe)

Hi Brian. The Sansui WLD+201L we reviewed in the October 2012 issue does this (sort of) and costs



Tellurium Q USB cable could not affect data loss, says Tony Rogers.

just £350. I say "sort of" because it does not have internal memory, but plays from a USB memory stick. Unfortunately, it does not have a rear port like Cambridge Audio players, that can be used as hidden long term external memory, only a front port. But you can load your MP3s onto a USB key and play them on the Sansui. Better, at this low, low price it offers internet radio, VHF radio and an internal DAC. It is a bargain that may well appeal to you.

Paying more, but not a King's Ransom at £550, there is the Aune S1 Media Player. Again, this reads from a USB memory key but it offers very high quality, all the way up to 24/192. OK, this isn't well aligned with your current interest, MP3, but if you ever feel a little more ambitious it will cope. Download a hi-res file to your computer from, say, HD Tracks, and it will play it.

Your MP3 player will not of course; it will blow up instead. A solution to this is to play hi-res at home and down-convert to MP3 for your portable. **NK**

GOOD FOR GOLD

I have a bit of a issue. My system is as follows; Musical Fidelity A3cr pre and X-A200 power amps, Monitor Audio GR60's. All of this is being fed by a Musical Fidelity X-ray v3 CD player. Cables are 4 metres of Chord Rumour 4 for each of the 'speakers, and Van-den-Hul 'The Bay' C5 hybrid to the CD. The room is approximately 16' x 13' and is a wooden floorboard type in a house made in the 30's.

My soundstage is not very big and it's missing something but I'm not 100% sure what? I think the weakest link is the CD player and have considered adding the Musical Fidelity Tri-vista DAC to open things up? Having been an avid reader of your mag for many years I would appreciate a bit of insight as to my options and possibly my next move on the upgrade we hi-fi nut-cases strive for??

Douglas Curl

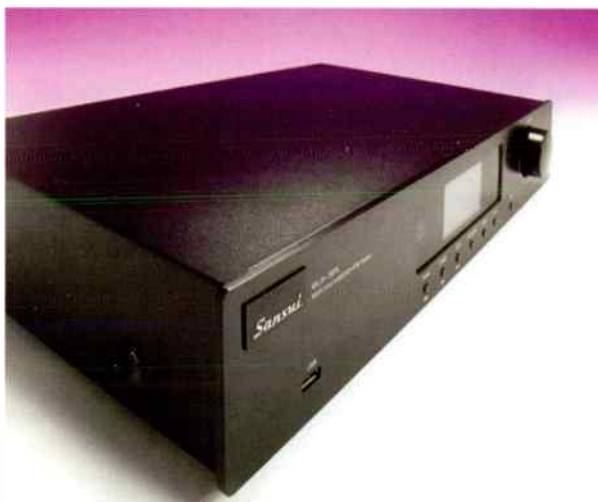
Your X-ray CD player is getting long in the tooth and would benefit from a Rega DAC, reviewed in our September 2012 issue, which will bring more life and space to the sound.

Those X-200 power amps are none too wonderful either and are likely helping toward a sense of dynamic flatness. A Creek Destiny 2 would be my choice here as it is a perfect match for your lovely Monitor Audio Gold Reference 60 loudspeakers: it has great dynamics, plenty of air and space and the right tonality to ease the GR20s a tad. I think you will be quite surprised at just how different and better your system will become. **NK**

78 MATE

Well, Terry and his mates at Loricraft have done a great job of servicing/ rebuilding a Garrard 401. They have mounted it in one of their open plinths and we have added an SME M2 with a Goldring 2500 cartridge. Everything is good, into my second hand Cyrus amps feeding my biamped Castle Chesters. Sometimes I replace the Cyrus set up with my old A400 from the spare room. That's not at all bad.

Some might think the sound a tad



Is there an MP3 player that is a hi-fi separate, asks Brian. Try the bargain Sansui WLD+201L we suggest.

"bright" but at my age that is no bad thing. Gone are the days when I could easily hear the bats flying around. As a young teenager I could actually hear up to 28kHz (we called them cps) as tested in the physics lab at school.

My next step is to set things up to play 78 rpm records. I still have my father's old wind up gramophone in the loft and somewhere a Lenco deck but it would be much easier to purchase a modern cartridge to mount in the spare

headshell for the M2.

Budget? Well, as well as going to the Olympics on my birthday various people have donated generously and I can manage something like £150 at the moment. Maybe a bit more at a push. What do you suggest?

David Mills

Hi David, although the Lenco will do a very good job in playing your 78s, the Garrard 401 will offer superior performance allied with the M2 arm. You don't specify whether you wish to use MM or MC cartridges but there are quite a few choices in both designs.

The cheapest option is the Shure M78S at £59.99. This is a monophonic version of the current Shure cartridges, fitted with a suitably sized stylus. (www.shure.co.uk)

Ortofon have just introduced the 2M 78, retailing at £80, which uses a dedicated monophonic version of the well-liked 2M series, allied with a 65 micro-metre diameter spherical stylus. (www.henleydesigns.co.uk) A review will be coming soon.

Stanton also offer standard groove replay with the 500/ 505 series cartridges, and a range of styli sizes to cover everything from conventional laterally cut 78s, through to the vertically cut Edison and Pathe discs. Prices start from £34.95 and go up to £600 for the complete six stylus Archival Kit. (www.soundhifi.com).

These are all Moving Magnet models. Audio Technica offer the Moving Coil AT-MONO3/SP 78 cartridge at £219.00. This is another dedicated mono cartridge fitted with a 2.5 mil conical diamond stylus, and offers excellent performance. (www.henleydesigns.co.uk).

Benz Micro also offer a 78 mono option on most of their models, but these are made to order so will take a little while to arrive. Contact Select Audio (www.selectaudio.co.uk).

Most 78s will have 70 plus years of dirt, and residue from the steel needles used when they were new, in the grooves, so I would recommend cleaning them thoroughly first. I use a Disco Antistat cleaner, available on the internet from around £30. I use either L'Art du Son fluid, available from Loricraft (www.garrard501.com) or Russ Andrews Revive Record Cleaning Fluid (www.russandrews.co.uk). Both are safe to use with shellac. I also have a second Disco Antistat which I fill with distilled water to rinse the record after cleaning.

Played with a suitable cartridge and cleaned, the dreaded hiss and



The Rega DAC offers smooth sound with plenty of air and space. It is a great budget CD upgrade.

crackle should be quite muted, and good condition 78s can offer surprisingly good sound quality when played through a modern system.

I hope to be exploring various ways of getting the best sound from these venerable discs over the next few months so watch this space. **TB**

RAFAEL'S CHOICE

I enjoy all of Rafael's reviews, but I'm not familiar with very much of the music he refers to. Could he give an outline of the pieces and recordings he uses? If he added what each was used for, that would be useful. Plus, it gives me more new music recommendations to listen to.

Would you dare give each reviewer a page or two for the same thing? Or just music they feel we should listen to? Not quite a library building series, but the music is the point of hi-fi. Otherwise it's One Direction all the way.

Cheers,

Doug McClure

I generally try to use music that is good at revealing the strengths and weaknesses of the specific equipment. A large orchestral piece can test equipment to its limits, demanding a wide and accurate soundstage, showing the various different groups of instruments spatially, tonally, and then musically. It will also show how the bass speaks relative to the rest of the orchestral sound. So often equipment is let down by its lack of ability to let all the instruments speak together.

I normally state the piece of music, composer, and recording that I'm using, which you could Google if you are so-interested. Typically, I often use Solti's CD recording of the 'Tombeau de Couperin' by Ravel as this exposes timing floors, general rhythmic swing, and on the best DACs and CD transports, a remarkable sense of stage depth, which can so easily be lost if there is a weak link lurching around!

It is also great at exposing micro phrasing, i.e. the ability of the equipment to make the tiny changes of volume required to give a piece a sense of phrasing and therefore meaning. If this is lacking, the sense of the music

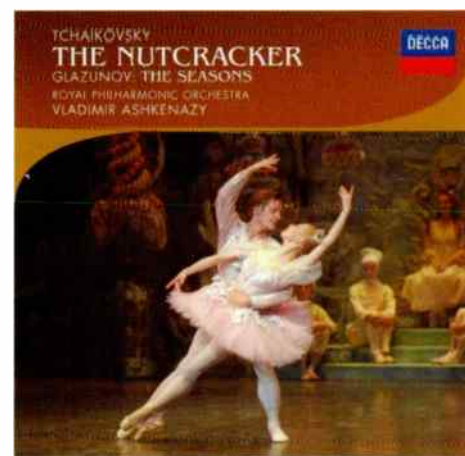
becomes blocked and uninteresting.

I also like to listen to how the piano is reproduced, typically listening to the Tchaikovsky Piano Concerto in Bb minor, Ashkenazy with Solti conducting, again on Decca, as the transients on a piano are so rapid, and the piano will not sound correct if these are not working. Pianos on vinyl can sometimes sound a bit muddy, it takes a really fine turntable to resolve its sound.

Then there is the issue of speed stability on vinyl, a piano will show this up rapidly enough.

Above all, I look for the ability of the equipment to create the illusion that the players are in my listening room, so that I can suspend disbelief and can be transported by the music.

I tend to use music with large forces because it is so revealing. Listening to female vocals accompanied by a single other instrument may sound very good (when I go to hi-fi shows the bulk of what I hear falls into this category) but it may not differentiate



Ashkenazy playing Tchaikovsky on Decca is a good test for hi-fi, says Rafael Todes.

between two very different systems. I also believe that the demands of capturing an acoustic recording, as opposed to tracks that have been overlaid and are spatially defined by panning controls, are far greater and are an excellent indicator of a system's ability to generate accurate spatial relationships, based on precise timings.

**Rafael Todes,
Allegri String Quartet**

Fm? Not Arf!

No DAB in sight, just FM, AM and a touch of Bluetooth, Paul Rigby reviews the Tivoli Model One BT.

It's quite a refreshing change to review a new, luggable, radio and not to see the DAB logo imposed upon it, but that's the case with the Tivoli Model One BT. Available in Walnut veneer with beige control fittings, Black Ash/silver, Black Ash/black silver, white/silver, and Cherry/silver, spanning 114x213x133mm and weighing in at 1.86kg, this so-called table-top radio will receive a Bluetooth signal from any device that is capable of sending it, typically a Bluetooth equipped phone, computer or notebook.

Connecting the Tivoli via Bluetooth is relatively simple. The input selector, which also features, FM, AM and Off, is turned to BT on the Tivoli and it pairs with any Bluetooth device. More prosaic features also include a rotary volume control, a station tuning indicator and rotary tuning knob on the front with a power socket, FM internal/external antenna switch which can improve aerial performance for some, external FM and AM aerial connections, a headphone out and AUX in plus a record output on the rear.

SOUND QUALITY

AM suffered hiss, only one or two stations being easily recognizable and usable. Turning to FM I tuned into BBC Radio 2 and listened to The Temptations' on 'The Way You Do The Things You Do'. Both trumpet and sax were quite transparent in

nature. There was a payment for this apparent clarity with the Tivoli being a tad clinical, especially within the upper mids and during percussive cymbal strikes, within the treble. Nevertheless, this aspect of the presentation was not a major concern and only really became noticeable at high volumes. Bass was minimal, which was no big surprise considering the size of the included speaker, although upper bass tones were musical and relatively tight.

Moving to BBC Radio 3 and a selection of operatic arias, the Tivoli took the higher quality signal in its stride, showing that this radio had audiophile capacity to spare. A conglomeration of male tenors could have produced a confusing blancmange of voices but the Tivoli was able to separate each successfully, despite the single speaker. Midrange detail was superb, enhanced by the quality of the supplied aerial which produced no noticeable hiss. The supporting orchestra had a definite placement on the mono-structured soundstage which added to the sense of depth of the performance.

Speech was then considered, via BBC Radio 4. Within many radios, vocal performance is sometimes masked by a lifted bass that can muffle vocals, especially during low volumes. Via the Tivoli, human voices were packed with texture and, more importantly, a contrast which made word recognition easy. This was enhanced by well structured bass that

gave strength and projection.

Playing Bluetooth-derived music – via EAC-ripped WAVs on my iPhone 5 – Skunk Anansie's 'Hedonism' was lively with a surprising amount of detail illuminating secondary percussion such as the tambourine while the vocal combined power and fragility and bass provided a meaty support, considering the size of the Tivoli's speaker.

Stacey Kent's jazz vocal track, 'Les Eaux De Mars' maintained the Tivoli's impressive clarity. All background, analogue instruments were available to the ear. Percussive rim shots and cymbal work was crisp and sharp while guitar was melodic and rhythmic, accompanied by a solid bass line.

CONCLUSION

The Tivoli Model One BT is surprisingly effective as an FM/AM radio. Bass might go AWOL on occasion but there is enough low frequency performance to provide drive and foundational support, while mids and treble are delicate and detailed.

Bluetooth is also effective and relatively easy to initiate while performance is satisfying. There is a touch of the clinical at high volumes but that is more a reflection of the included speaker and I'm nit-picking to highlight the fact. The Tivoli is a remarkable performer for the price and the specification.



VERDICT

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MODEL ONE BT £199

Tivoli

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FOR

- clarity
- detail
- design
- tonal palette

AGAINST

- bass light
- slightly clinical

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Micro DAC

Small and perfectly formed, Paul Rigby takes a look at the diminutive E-DAC from Epiphany.



The specialised, independent Digital-to-Analogue converter (DAC) has become one of the most popular hi-fi components on the market over the past few years.

With the increase in popularity of digital music, DACs cater for those who appreciate that a better DAC can result in improved sound from CD for their main hi-fi. Others use external hi-fi DACs to improve their computer-sourced music.

Like any product that has infiltrated the market on a broad level, however, the DAC is starting to reach into niche areas. The Epiphany E-DAC has been created to fill one such niche, the mobile market. Well, luggable market. For music fans on the move, a laptop weighing them down, the E-DAC is intended to free them from 'default' headphone output misery.

Connecting to a laptop via the USB port, the E-DAC takes a "... bit-perfect output which has not been interfered with in any way by the computer or any cheap internal electronics. This gives you an ultimate starting point for the signal in the chain", said Oliver Freeborn, proprietor of Epiphany Acoustics.

Freeborn is also happy that enough anti-jitter design has been integrated within the DAC so that, no matter what the quality of the USB is on the laptop, final sound quality will be high. The box, which

spans a tiny 62x65x20mm, weighs in at a meagre 75g and arrives in any colour as long as its black. It has a mini-USB input socket which supplies power from its 5V internal line, plus a 3.5mm Line Out port. Made from brushed aluminium "it keeps the whole form factor small and light" said Freeborn.

The E-DAC is based upon the Tenor TE7022L USB receiver chip, supporting 24bit/96kHz and the ES9022 24bit DAC chip. "The DAC is one of the few that can get 24bits out of a USB, which is quite important because, when it comes to the computer and the USB output, if you're playing around with the software volume control, you will lose bits. So, if you've got a 16bit DAC, you're reducing the quality immediately. With this particular chip, you can afford to play around with the software volume control because you will still have an awful lot of bits left, feeding into the DAC and downwards into the system".

As with the EHP-O2 portable headphone amplifier, the E-DAC has been designed by the anonymous NwAvGuy, whose full job is an electrical engineer. The relationship between this mysterious character and Epiphany is intriguing. "It's a mutually agreeable arrangement. He designs it and I ship it. He has no commercial interest in it. He does not get anything from it; I don't pay him any royalties," said Freeborn.

NwAvGuy is quite an opinionated chap whose forceful views spark many a forum debate online. "I think the general impression that NwAvGuy has is that he's not too thrilled with the current quality of hi-fi and the price at which it fetches. I don't think that he is happy at how expensive it is, so he wants to shake things up a bit and show that here is something, for £100, that offers value and top sound quality. Why buy something similar for £2,000 or more?"

During the design, NwAvGuy was quite meticulous in his component selection. "He spent a lot of time looking at every single component on the board, measuring the performance and comparing nearly every single component with other brands, sizes and values. He refined the component choice very carefully, which is why it took so long to develop. He literally sat there, with the audio analyser, changing tiny things to see if the DAC sounded better for it. Moving a capacitor 2mm this or that way to see if it affected the sound", said Freeborn.

Freeborn is already working on enhancements and accessories to and for the DAC. "What I am considering doing, if I can source the right adapters and cables, is to produce a USB cable where you can inject an alternative power supply".

This future modification, possibly out by the end of the

year, would include a split cable to allow the connection of an external transformer and would provide all power.

Another, more certain, future release is a 3.5mm to stereo RCA convertor cable to enable you to connect the DAC to a hi-fi, resident within your listening room. In the meantime you can get a 3.5mm to RCA phono output adaptor at Maplins that does this job.

SOUND QUALITY

I started the listening tests using my MacBook Pro complete with SSD hard disc. Beginning in a high tempo mood, I clicked on an EAC-ripped WAV version of Skunk Anansie's 'Hedonism' with the dinky E-DAC plugged into the USB port of the laptop and a pair of Sennheiser HD650s attached to the Line Out port.

The sound of the new generation of MacBooks is generally pretty good, being quite solid and dynamic with no hint of brightness from the headphone output. Adding the E-DAC into the chain just lifted the music onto a whole new level.

There appeared to be a drastic reduction in distortion; the overall presentation was far smoother. Whether you're talking vocal, guitar or percussion, there was a new sense of clarity that improved any song, removing the smog factor from the front of the stage.

That lifting of the sonic haze put a sense of air and space around the performers, along with a new and more effective instrumental separation. As such, Skin's double tracking vocal was more evident, while the percussion enjoyed an effective degree of reverb. Bass was rounded in form, giving it dimensionality, while also sounding more destructive and heavy in terms of sheer mass.

On Stacey Kent's vocal track, 'Les Eaux de Mars', this small ensemble piece emphasised the romance of the French language song. Kent's own delivery oozes with an exotic delicacy and it was a little distressing to hear the Mac hardening her vocals. With the E-DAC in the chain, this hardening was removed. Indeed, it now sounded like Kent was able to venture even closer to the mic to provide a more intimate rendition.

Backing guitar was easier to follow too, despite its close micing, because it lost a bloom in the upper mids. Treble also

improved, cymbal work shimmering and appearing more delicate, while the piano was both flowing and rhythmic.

Meanwhile, Dexter Gordon's jazz piece, 'You've Changed', was positively moody. This ballad charmed itself into my ear. The E-DAC opened up the sax and provided enough information to suggest that there was a real person on the end of it. Human touches provided imperfections that injected realism while the bass was now a full part of the mix and not stuck on as an afterthought. Midrange was spacious and this expanded the soundstage, giving each musician room to perform.

Keeping the portable theme going, I decided to include the Audio Pro Porto luggable iPod dock which features a decent speaker system. Connecting the E-DAC's Line Out socket to the Porto and retaining the Gordon jazz track, the resultant lower distortion encouraged me to increase the volume on the Porto which, of course, introduced more detail to the sound. Midrange was a delight, the drum brushes sounding textural while the sax was now positively seductive. It didn't need to try as hard to get its point across while, at the same time, offering a reedy delivery that was more vibrational in its effect. Trumpet also displayed individual elements that gave it a more complex presentation.

Onto Skunk Anansie's 'Hedonism'

but arranging the Porto as a near-field monitor, the rock track didn't swamp the space, retaining the necessary quality to keep the experience an enjoyable one. The clarity maintained the delineation of the individual aspects of the mix while secondary percussion, such as tambourines, were clear and present and were never masked by the strong lower frequencies.

Epiphany also offers an alternative USB cable with the addition of a ferrite ring along its length. I recommend it as a simple upgrade for just £4.95 as it managed, at least on my system, to lower noise a tad further. The result was that the subtle acoustic guitar accompaniment on the Hedonism track was slightly more detailed with feather light strumming to add a sense of fragility to the mix.

CONCLUSION

This tiny DAC is simple in construction and bare in its facilities but offers much in terms of sonic performance. Improving every aspect of the music I played, the question of whether to buy one or not is a no-brainer. The improvement in sound it offers is immense. For a portable system, it also adds next to no weight, fits neatly into a trouser pocket and is robust enough to take a few knocks. At the price, the Epiphany E-DAC is a bargain – and no mistake.

MEASURED PERFORMANCE

Frequency response measured flat to 35kHz with a 96kHz sample rate signal, our white noise analysis shows. 192kHz is not an option.

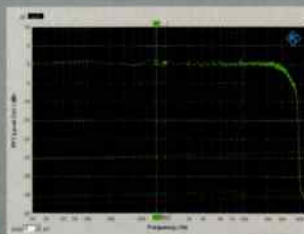
With a CD signal (16bit) distortion measured 0.14% at -60dB, a very low value. With a 24bit signal at -60dB, distortion sunk to 0.08%, again a low value as USB goes and our analysis shows an absence of noise. As USB goes this is a great result, supporting Epiphany's claims. The 24bit word is commonly truncated in budget products, just so it will play. Sound quality is no better – and often worse. The E-DAC is linear and well exploits the benefits, meaning low distortion and noise, of 24bit resolution.

Low distortion and noise both contributed to a high 112dB EIAJ Dynamic Range value with 24bit, and 102dB with 16bit. Most USB receivers are noisy, but the E-DAC is not and this is a big differentiating factor.

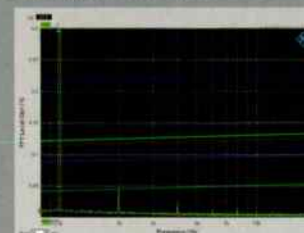
The Epiphany E-DAC measured very well for a USB DAC. It is quiet, linear and has wide bandwidth, an exceptional set of figures for USB, especially at the price. NK

Frequency response (24/96)	CD	4Hz-35kHz
Distortion (24bit)	0dB	0.001
	-60dB	0.08%
Separation (1kHz)		108dB
Noise (IEC A)		-111dB
Dynamic range (24bit)		112dB
Output		2V

FREQUENCY RESPONSE



DISTORTION 24bit



VERDICT

With a very small form factor, this tough little DAC is ideal for a portable music system offering a major increase in sound quality.

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E-DAC £99.99
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Bookshelf Muscle

Small packages don't always have to be meek and mild, Paul Rigby reviews a pair of Polish bookshelf speakers, the Akkus V1, which look to combine power with control.

You can't measure passion, you know. Well, maybe you can in Witold Albecki's, owner of Polish-based Akkus, case. Albecki doesn't just have one speaker to sell, he has a range, the V range. The point of the V range? Bass. That is, bass that is balanced within the soundstage as opposed to overemphasis or, indeed, under-emphasis. Something which, he says, is tough to find at the price point of the V1 pairing, reviewed here. "Speaker systems, in the same price range as the V series, often lack low-frequency response. Just as often, they tend to overemphasise the mid-bass and

upper bass. The emphasis does not lend itself to a faithful reproduction of, for example, the double bass. Deep bass extension, if served in moderation, increases the sense of comfort, making the sound more pleasant to the ear and enticing the listener to enjoy music over longer sessions. Naturally, good bass response is not the sole prerequisite for excellent sound quality. Still, unless that prerequisite is met, any delivery of musical content can hardly be considered complete."

The Akkus V1 is a well finished pairing. The cabinets are made of 25mm MDF with the front panel consisting of two layers for a

combined thickness of 50 mm, "...in an attempt to reduce colouration", said Albecki. "While using a thick panel could inhibit the air flow from the speaker cone to the inside of the cabinet, the edges of the internal opening are shaped to eliminate any potential issues. Additional reinforcing components make the structure more rigid and protect it against panel vibration".

As such, a selection of natural veneer finishes are available. The current range includes Bird's Eye Maple, Cherry, Padauk, Rosewood and Wenge.

Moving to the business end of this rather hefty speaker,



weighing in at 14kg and spanning 235x360x350mm, the tweeter features a 28mm silk dome design from Usher Audio. "Its magnet system uses copper rings to linearise the magnetic field in the air gap", said Albecki, "which is a typical solution for a quality high frequency driver. We tested many other drivers, including a much more expensive tweeter from Scan-Speak with a nearly identical design. The Usher unit delivered smoother integration with the midrange, resulting in a coherent and full-bodied sound.

The mid-bass driver in the VI uses a paper cone plus a hefty magnet. "The unit has excellent technical specifications with low distortion and a high power rating", said Albecki, "and is an excellent match for the silk dome tweeter".

The crossover uses a range of optimised filters to "...achieve the best phase alignment and flat frequency response. It is based on audiophile-grade components, such as air core inductors, including ribbon inductors, polypropylene capacitors and Mills resistors, which are not a common sight in speaker systems at this price point. The crossover frequency is 2.5 kHz".

Returning back to the cabinet but moving inside this time and the damping which is completed with a combination of wool and bituminous felt lining. "If combined correctly and applied in a reasonable quantity, these materials effectively damp resonance and absorb the energy that should not be reflected back to the driver", said Albecki.

SOUND QUALITY

I initially tested the Akkus speakers with a Rega Brio-R and T+A G10 turntable, directly comparing them with my Spondor S3/5R2s, which belie their £850 price tag, often embarrassing speakers fetching much higher prices. Playing Yehudi Menuhin's 'Mendelssohn and Bruch Concertos' (HiQ) and Bruch's 'Violin Concerto No.1 in G minor Op.26', the Akkus proved to be slightly more sensitive than the Spondors, necessitating a reduction in gain. During play, Menuhin's violin was both precise



and sharp with a slight tendency to lift within the upper mids. That's not to say that the Akkus were overly bright but there was a clinical edge to the output during crescendos. Because of that, the violin detail was accentuated while Menuhin's bow strikes across the violin were dramatic, with a bite that struck the violin with force while the orchestral strings were also

challenging and aggressive during loud movements. That said, the Akkus could be incisive across the calmer moments too, lifting the emotion of the piece to the ears, getting under the skin of the maestro. Bass, not too surprisingly considering the larger cabinet size, was grander with a bold presentation.

Moving to prog and King Crimson's 'Three Of A Perfect Pair', bass was bouncy, lively and energetic with percussion providing both

"the Akkus had a whale of a time in the big bass notes, the dynamic rock rhythms and the high tempo chorus"

effective low frequency grounding plus a real sense of drive. The larger cabinets of the Akkus really loved the rock treatment, bass guitar too being both exact, accurate and somewhat unerring in its progress. Lead guitar was a little too lively in the upper mids although, that said, this mix can be a bit on the bright side. The Akkus made no attempt to calm these well lit waters, though.

Similarly, the lead vocal, during crescendos was rather strident in its approach. There was a distinct smoothness within the lower mids, projecting a soundstage with an agreeable degree of instrumental separation producing maximum detail.

Onto the Chris Conner album, 'He Loves Me, He Loves Me Not' (Atlantic) and 'High On A Windy Hill', the arrangement was both light and airy with the Conner vocal

being fleet of foot. Surface noise was rather high on this original LP, while the Conner delivery could lift a little when she entered a powerful portion of the song. The track never felt sluggish, however, with the singer and backing orchestra being eager to get on with things. The percussion was quite explicit while the strings were uncluttered, flowing easily.

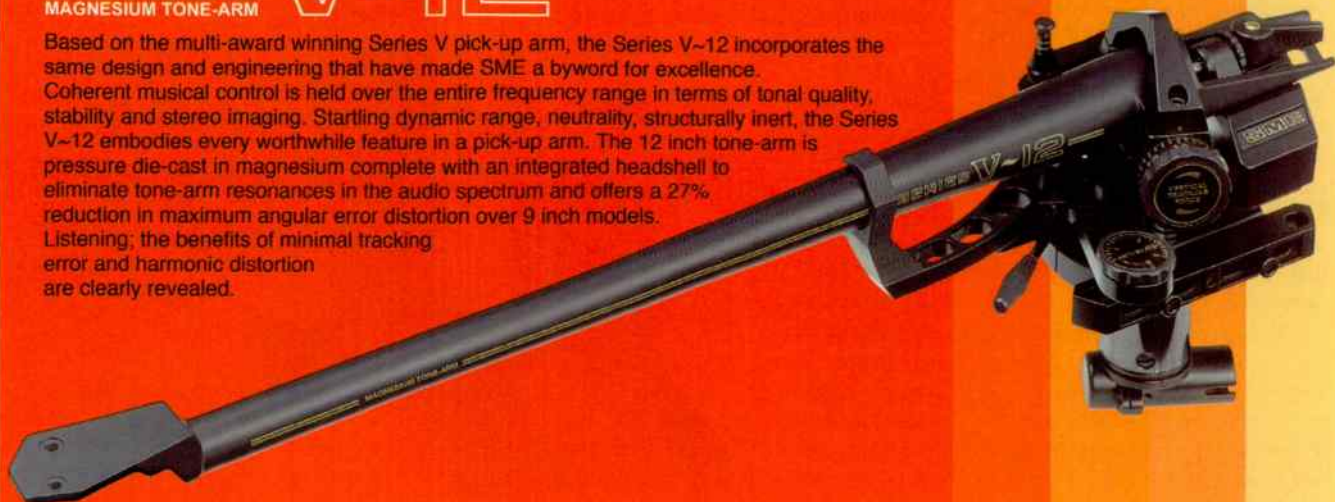
Turning to my Avid Acutus-based reference system and back to classical where Menuhin sounded



rather more mature. This was largely down to the Akkus speakers being taken by the scruff of the neck by my Icon Audio 845 Mk.II amps and Acutus turntable while the Isotek Genesis and Super Titan conditioners removed a lot of the aggressive distortion from the system. The result was a far more mature sound from the Akkus speakers which still offered a touch of stridency but without the rather more insistent effects of the T+A-sourced system. The Akkus' was more able to utilise its incisive nature to dig deep into the mix and reveal the textural sheen to the violin's strings. Brass was still a little belligerent but the Acutus-sourced system revealed more detail and information. That the Akkus could lift itself to the occasion, revealing itself to be capable of a rise in quality says a lot for the design,

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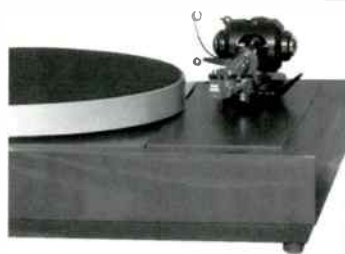
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though.

Moving to King Crimson's prog-based 'Three Of A Perfect Pair' which proved powerful and muscular in its bass output with a strapping percussion, dominating the mix. Similarly, the bass guitar was as effective in pouring forth authoritative lower frequencies. The lead guitar revealed a measure of stridency but not to the level of the T+A system while lead vocals provided a precise articulation.

Moving to CD now and Horace Silver's jazz album, 'Cape Verdean

tempo chorus. A real party animal, the Akkus gave me the impression that it really enjoyed letting its hair down. It preferred bass-heavy rock that didn't emphasise the mids too much.

CONCLUSION

The Akkus can tackle all genres of music well but is a bit of a free spirit, getting into the swing of a damn good rock track or high energy performance and head banging with the best of them. Despite its lifting midrange, it's precise nature is ideal

REFERENCE SYSTEM

- Avid Acutus turntable
- SME IV tonearm
- Benz Glider cartridge
- Icon PS3 Phono
- Densen B-475 CD Player
- Aesthetix Calypso Preamp
- Icon MB845 Mk.II Monoblocks
- Quad ESL-57 'One Thing' speakers

for classical and jazz, as long as your system is rather sweet or warm, in which case it will add much needed life and edge to the presentation.

NOEL SAYS

Under measurement the V1 had an obvious problem: there is an internal box resonance at 600Hz that affects output from the bass/midrange unit and the port. It's presence was also obvious in a decay spectrum measurement we make. From experience I know that such phenomena can look dramatic under measurement, but can be less so subjectively. So on to this one.

Firstly, the blemish was not obvious most of the time. However, just sometimes there were "whoopsy" moments. Plucked acoustic bass at the start of the Pink Panther theme triggered some suspiciously long overhangs on certain notes, a long booming quality to a note. This effect became obvious with percussion at the start of Hugh Masekela's 'Stimela', where the V1s were obviously booming. Unfortunately, once I had locked onto the effect subjectively it started to irritate me. Certain tracks, like Stimela, stimulated this resonance, but many others did not so it was not always a problem. The out-of-phase drive units in one cabinet resulted in image pulling. This is a build error. Stick on feet fell off too, as we moved the V1s around.

Box resonances are avoidable and none too impressive in a speaker of the price. Foam port bungs would likely help quell the boom. More care and testing after assembly is needed to avoid connection errors, and stick-on feet always fall off as the glue dries out.

Problems apart the V1s sounded clear, punchy and lively, if with a touch of brightness that added some bite at times. NK

Blues'. The Densen, through the Akkus pair, sounded tremendously polished with a perceptive piano line that was fast in its approach and exact in its presentation. The accompanying sax lifted a touch but its reedy nature came through well, adding layers of emotion and expression. Treble, in the guise of the occasional cymbal strike, was both informative and detailed but was a little splashy and bloomy.

Shifting to rock and Skunk Anansie's 'Hedonism', the Akkus had a whale of a time in the big bass notes, the dynamic rock rhythms and the high

MEASURED PERFORMANCE

One Akkus V1 gave an even on-axis frequency response under measurement, our analysis shows, with some upper midband lift - there will be some sheen. The other Akkus drive units were (mis)connected out of phase (yellow trace), a build error.

A small peak in our response curve at 600Hz correlates with a similar peak in the red port output trace, suggesting a strong internal box resonance. A 200mS decay spectrum measurement also shows significant overhang here, indicating coloration. This is an unusual and obvious flaw in the V1.

Low frequency output falls slowly, suggesting the loudspeaker has been balanced for near-wall mounting, the wall reflecting low frequency energy back to the room. Below 70Hz the port takes over and it extends output down to 40Hz. The V1 goes low enough to cover the music spectrum but will not have subsonics. Bass damping looks fair and, with strong port output, bass will be quite strong and possibly 'bouncy' in nature, seemingly energetic due to moderate levels of acoustic damping.

The bass unit measured 6.5 Ohms d.c.r., a high value. As a result, overall impedance was high at 9 Ohms, and the V1 does not draw heavy current. It is reactive though, meaning performance

will vary between amplifiers, according to how they handle reactance. All the same, sensitivity was good at 86dB SPL from one nominal watt of input.

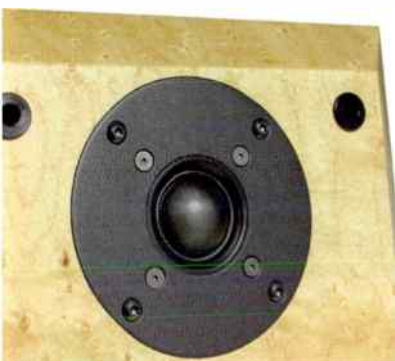
The Akkus V1 is an accurately balanced near-wall mounter, but with an obvious box resonance at 600Hz and one cabinet was incorrectly assembled with drivers connected out-of-phase. NK

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE



VERDICT

The Akkus V1 loudspeakers love bass but also offer often penetrating and incisive detail. Problems hold them back.

AKKUS V1 (INC. STANDS) £1,799
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- FOR**
- big bass
 - incisive detail
 - meticulous presentation

- AGAINST**
- upper mid lift
 - technical problems

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PAUL RIGBY says: *Offering an impressive feature list, the Sansui WMH-700L in terms of value and design implementation, is quite stunning for the price. It will certainly provide everything a digital-only first time buyer will need and will give the older user an ideal entry point into the streaming community.*

HI-FI WORLD

VERDICT ●●●●●

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World Radio History

Sansui

Dock Your Pod

Paul Rigby takes a look at a new iPod dock, the unusual Bayan 3.

IPod docks are everywhere at the moment so you have to be a bit special to stand out from the crowd. That's what Bayan has tried to achieve with the release of the eye-catching, 45W Bayan 3. Sporting a 133mm bass driver plus a 50mm mid/tweeter, the Bayan 3 includes a bass port firing rearwards. Offering a pseudo stereo effect, the unit arrives with a switchable voice and music EQ option. The former offers improved intelligibility for those who wish to listen to speech-based podcasts.

Spanning 290x180x230mm and weighing in at 2.8kg, the Bayan 3 also includes a USB port at the rear to attach an iPad or other tablet, plus an auxiliary port and power socket for an external transformer. A touch-sensitive power button resides on the top while a lightweight, plastic, chunky remote can control all aspects of the unit. The remote also features unique commands, such as the EQ option plus tone controls so, if you lose the remote, you will have to make do with a dock of reduced capacity.

The general design of the Bayan 3 is unusual and falls between two stools. Obviously wishing to explore the industrial route, Bayan has designed a chassis that could have been stunning and even rather steampunk in its finish. What has resulted, though, looks like something that's emerged from the bag of a plumber or electrician. You really need to install it somewhere the unsightly rear cannot be seen.

Speaking of rear ends, this is where the 2-button volume control resides. If you're going to feature volume controls, put them somewhere where the user can reach them instead of fumbling around the back in the semi-

darkness.

Yes, there is a remote but remotes can be lost and, sometimes, it's just inconvenient to use one. Similarly, a front-loading USB port is more convenient than USB on the rear.

The Bayan can handle any iPod or iPhone that sports the 30-pin connector which naturally excludes the new iPhone 5.

SOUND QUALITY

Playing a selection of Carol Kidd's jazz vocals via EAC-ripped WAVs, from the Linn CD, 'Dreamsville', on my iPod 80GB Classic, the general presentation, when compared to my reference iPod dock, the slightly cheaper Klipsch iGroove HG (£150), saw the Bayan 3 finding it difficult to extend the midrange and treble frequencies in the same manner despite an admirable attempt. Bass, via the introductory double bass, may have lacked an effective low frequency performance but the upper bass response was relatively tight and punchy.

Kidd's voice was reasonably open and expansive, displaying a commendable sense of emotional connection. The accompanying acoustic guitar solo also tracked nicely, despite some slight upper midrange bloom marring the effect.

At higher volumes the

Bayan 3 struggles to keep its sonic composure, as clipping kicks in. Even at moderate volumes, distortion enters the soundstage which reduces the apparent precision of the output somewhat. Hence, the Bayan 3 should only be used in small rooms or at lower volumes as a near field system.

Turning to Mozart's Symphony No.42 in F, the Bayan could relax as it wasn't called upon to strain itself too much. Strings were polite and flowing, the upper mids held the brass in check without adding a great deal of air and space while the limited bass frequencies on offer were easily fielded to provide a cultured and rather civilised performance.

Onto Genesis and 'Abacab' the Bayan 3 sometimes struggled to contain the Collins lead vocal, losing definition during crescendos, while bass proved relatively solid without impressing. General midrange performance via Tony Banks synth was good but sonic drop-outs occurred if the volume was pushed too high.

CONCLUSION

Unique in looks, the design of the Bayan 3 is less than impressive and, in some respects - notably the volume control - poor. In sound terms, at low to medium volume levels the Bayan 3 provides good fidelity, offering a generally balanced output without any notable spikes or edges.



VERDICT

Clean looks combine with a generally good sound - an effective near-field system.

BAYAN 3 £160

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FOR

- nearfield use
- smooth midrange
- classical output

AGAINST

- high volume performance
- rear-fitted USB
- design
- remote dependent

Full Moon

In their new 810LP phono stage Moon offer a full range of adjustments and options. Noel Keywood and Rafael Todes take a close look.



Here's a product for well heeled enthusiasts to drool over, the new Moon 810LP phono stage. Beautifully built and finished, like all Moon products, it is both weighty and large. A width of 18.75in (Moon are Canadian and use Imperial units) suggests the 810LP has been designed to just fit a standard 19in rack/stand, with little to spare. Getting it there will be an exertion because it weighs 40lbs (18kgs), no less. And finally there is another large value to consider – price. In the U.K. the 810LP has a price tag of £8450!

Apart from a unit that looks substantial, for this you get a technologically 'dense' proposition, if not one without competitors, like the Creek Wyndor we reviewed

in our October 2012 issue. Both have balanced inputs and, currently, this isn't so common, even though electronically it isn't too difficult to implement as there are plenty of modern audio chips, often described as 'microphone preamps' that come with balanced inputs. However, the Moon also has balanced outputs, their 50 Ohm source impedance able to drive long balanced, screened lines. So the 810LP can be placed a way from the main amplifier.

In my experience balanced lines always give a tidier, more focussed sound than unbalanced, even though they insert extra circuitry, so it's appropriate that the 810LP has them. However, you do need to get a dealer or specialist to ensure your arm is all-balanced, meaning no earthed signal lines, and the output lead will

be terminated with bulky XLR plugs, an operation I carried out some time ago on my SME312S 12in magnesium arm. Because cartridges are fully floating (non ground referenced) generators, they can feed a balanced line and this all but eliminates hum, noise and interference (strictly, common mode interference). In an expensive set up it is worth going all-balanced in the way the Moon 810LP allows.

In addition to the standard size XLR balanced inputs there are gold plated unbalanced RCA phono socket inputs and one pin of the XLR's is shorted to ground with a link to reduce noise when the phonos are in use because the inputs run in parallel into the first amplifying stage; there is no input switching.

Underneath the 810LP lie banks

of DIP switches, to alter gain and input conditions (resistance and capacitance). Personally, as an engineer who has designed phono stages (World Audio Design) and ultra low noise preamps that must withstand heavy use and plenty of abuse, I long ago abandoned mechanical switches, and certainly cheap DIP switches. Low signal, inert gas filled, long life relays (Panasonic) are the usual solution and carry many benefits, front panel and/or remote control operation being the most significant. They would have been a better choice for a phono stage of this cost I believe.

I don't feel the large number of loading options are really needed, and in my experience most would offer inaudible change, although some may disagree and like a change to play. I like to experiment with 10 Ohms and 3 Ohms with MCs, because the latter in particular damps high frequency ringing in the generator; subjectively this slightly eases treble sheen. The 810LP reaches down to 12.5 Ohms so it gets close to being useful in this respect.

Moon have put effort into getting the power lines quiet and talk about a magical beast called a choke, that kills h.f. noise (I love 'em of course). It doesn't do much good to d.c. regulation, but you can't have everything. The voltage regulators so many manufacturers believe in are, in effect, noisy power amps whose noise cannot easily be eliminated and do not suit ultra sensitive audio equipment like this, so it is worthwhile designing better power supplies, as Moon claim to have done. They talk of achieving the silence of a battery supply, and certainly battery powered equipment does seem to have a smooth, benign sound with fine clarity, sound staging and timbral resolution. And that is what Rafael heard with the 810LP, he told me.

Finally, Moon offer both super accurate RIAA equalisation and an 'IEC' option that incorporates a warp filter. Unfortunately, the IEC warp



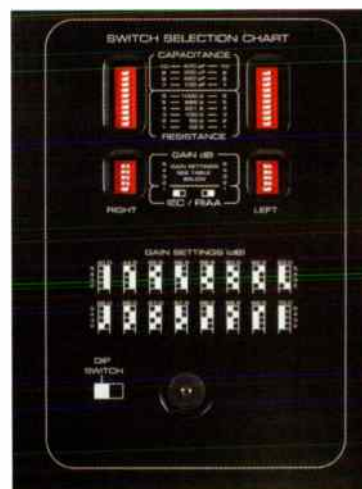
At left is the power supply complete with chokes, at right a multi-layer board, vibration damped, and carrying silicon chips.

filter audibly weakens bass, and you must upend the 810LP, all 18kgs of it, to switch the filter in and out – hardly practicable. The crudity of IEC warp filtering is an old problem, often solved by using less intrusive filtering, a high pass with a +1dB bump at 40Hz being a subjectively satisfying option, because what it loses in deep rumbly subsonics it makes up for with a little extra deep bass power. Whatever, the 810LP offers utterly precise equalisation, perfectly tailored to less than 0.1dB error our Rohde & Schwarz UPV analyser, programmed with a mathematically perfect curve, showed. So Moon have put some thought and effort in the 810LP; it does not, for example, have the treble lift of so many phone stages, put there to 'add detail'.

SOUND QUALITY

Listening to Miles Davis' "Workin' with the Miles Davis Quintet", it is clearly apparent that this phono stage had a tighter bottom end than my trusted Icon Audio valve PS3 phono

stage. The plucked jazz double bass really comes across with a tightness and clarity that I don't normally hear. I also note on this vintage recording, that the Moon Audio has an ability to



Input loading and gain DIP switches are underneath, so difficult to alter because of the 810LP's 18kg weight.



Unbalanced (gold) phono sockets and balanced XLR connectors on the rear panel, for both inputs and outputs. The XLR inputs have shorting links when not used, as shown.



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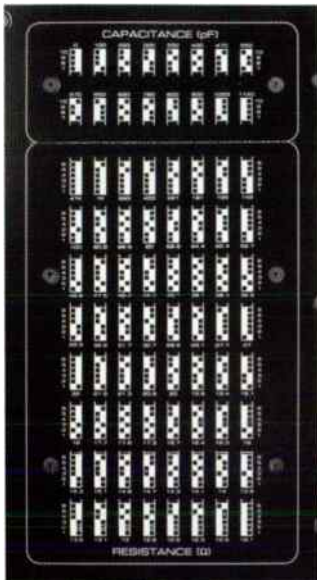
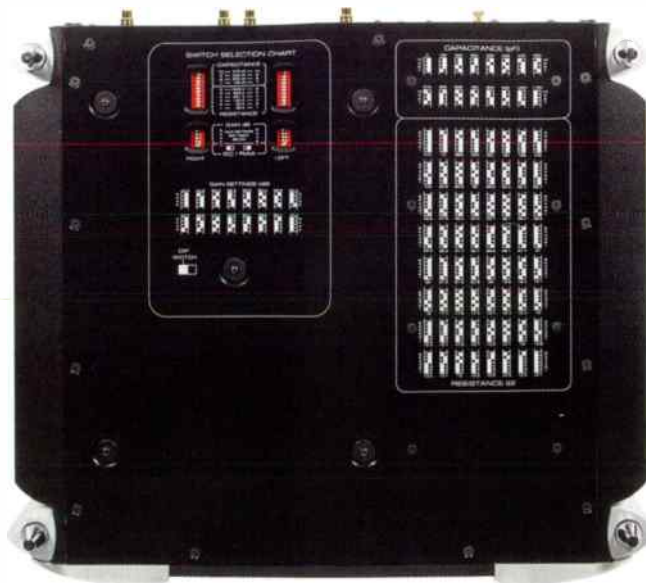
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make the piano sound cleaner than my reference, less soggy and more modern-sounding.

Moving onto the Mozart Sinfonia Concertante for Winds, the work starts with an orchestral overture before the arrival of the soloists. It is like being in an Opera theatre while the music has started and the curtain has not yet been raised. There



The underside carries a chart of switch combinations and their values.

should be a bubbling sense of anticipation, excitement as to what is to follow. Somehow, the Moon in its cleanliness doesn't quite capture this sense of anticipation in the same way as the Icon does. With the Icon I'm on the edge of my seat, with the Moon I'm relaxed.

The woodwind instruments are beautifully tonally accurate, the Clarinet is mellow and rounded, the individual sounds are sophisticatedly portrayed. The sound is rich and full with no hint of any grain. It sounds to my ears as uncoloured a piece of kit as I could hope to hear. I love the way I can clearly hear the basses tightly underpinning the cellos an octave lower, my Icon can't do that so clearly.

Listening to Bernstein conducting the Dvorak New World Symphony on CBS, which has substantially larger forces than either of the two preceding recordings, shows how well the Moon keeps the sprawling orchestra under control. Even in the big saturated climaxes, it easily holds the textures together without any trace of screaming or muddle.

So there are many highly enjoyable aspects to this remarkable phono stage, it is highly capable and intelligent, it favours grip and control over brazen fun, which may not be to all tastes.

CONCLUSION

This is a top quality phono stage, of that there's no doubt. Rafael was very impressed with its sound and he is a hard man to please, especially as he uses an all-valve

phono stage, the Icon Audio PS3 (like me). Those of the bottle don't easily take to chips, Because the 810LP is so good we agreed it deserved five Globes for performance, even though it's switching could have been more conveniently located, and arguably better implemented. But no product is perfect. So if you have deep pockets, and a top dollar moving coil cartridge - say an Ortofon MC Anna - the 810LP is certainly worth auditioning.

MEASURED PERFORMANCE

The Moon 810LP has a maximum gain value of x3130 measurement showed, exactly the 70dB claimed. With a relatively high output swing of 11V available this gave an input overload value of 3.5mV. Both are suitable for very low output MC cartridges and an ultra low equivalent input noise figure of 0.06µV (IEC A weighted) is as good as it gets with transistors; only input transformers can manage lower noise.

Equalisation was perfectly accurate across the audio band our analysis shows, with no deviation from the mathematically perfect curve programmed into our Rohde & Schwarz UPV audio analyser. To be this accurate means Moon have spent time attempting to achieve perfection. The IEC characteristic introduces bass roll off to suppress disc warps, but the true IEC curve as implemented is drastic and audibly lightens bass.

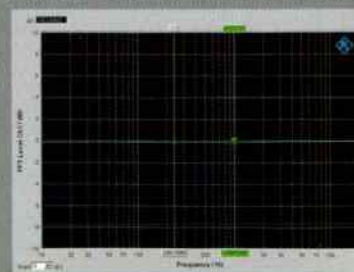
The myriad of different gain and input load values are somewhat spurious. MC cartridges need a few low values (e.g. 3 & 10 Ohms) able to electrically damp the generator to reduce ringing, a standard 100 Ohms and perhaps 200 Ohms.

Also, the mechanical DIP switches used are cheap, will deteriorate with time due to oxidation and are inappropriate to such an expensive product. Panasonic low level signal, inert gas filled relays with precious metal contacts are more suitable. Then

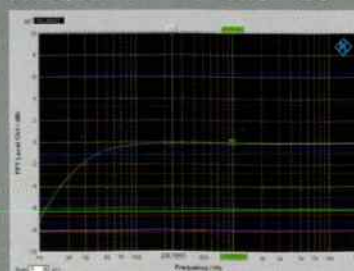
remote control of input switching could also be provided, allowing users to experiment with settings and switch to IEC to suppress cone flap induced by warped LPs. NK

Frequency response	5Hz-20kHz
Separation	65dB
Noise (e.i.n.)	0.06µV
Distortion	0.01%
Gain (MC)	x3130 (70dB)
Overload	3.5mV in / 11V out

FREQUENCY RESPONSE RIAA



FREQUENCY RESPONSE IEC



VERDICT ●●●●●

Technically well developed phono stage that is accurate, quiet and has great sound quality.

MOON 810LP £8450
 Renaissance Audio
 ☎ +44 (0)131555 3922
www.renaissanceaudio.co.uk

- FOR**
- great bass
 - adaptability
 - smooth, accurate sound

- AGAINST**
- difficult to adjust
 - DIP switches
 - warp filter inaccessible



Around 650 visitors attended the 138 stalls of this 20th Anniversary Audiojumble. Our photo was taken around 10am, when sellers only had the 9.30 'early birds' to deal with. After 10.30am, you'll pay less to get in (£5, rather than £10). However, you might have missed some of the bargains. It's unlikely you'll go away empty-handed, though...

Jumbling for joy

Martin Pipe reports from one of the UK's most interesting hi-fi shows

Two Sundays a year, various halls (and often corridors!) in the Angel Leisure Centre in Tonbridge, Kent, play host to Audiojumble. One of several similar events taking place around the UK, Audiojumble gives enthusiasts a chance to meet and buy or sell their old equipment. There are also trade stalls, notably new/used record sellers. The October 7th event featured here marks the twentieth anniversary of Audiojumble, and to mark the occasion there was a fascinating exhibition of Nagra equipment. Record-cleaning products from MAF were available in the main hall; in a smaller room, meanwhile, Boney Audio and Abingdon Music Research were demoing supports and new gear - including the valve amps and speakers made by John Howes, who also organises the show.

Dedicated audiophile - and Audiojumble organiser - John Howes shows us the homebuilt control unit of a Bailey-designed Hart Electronics kit-amplifier system. This 30-watt Radford SCA30 'clone' sold for a fiver!



The biggest joy, though, is the sheer variety of gear on offer. Tape decks (and the tapes for them!), turntables, tonearms, amps, speakers, tuners and CD players all make a presence. Obsolete 'collectors items' seen at previous shows have included Sony Elcaset machines, Gramdecks (a novel way of turning a record player into a tape recorder), quadrasonic hardware of various types and DCC/Minidisc. Some of the more esoteric products can fetch high prices, but bargains are always to be found. A couple of years ago, an Oracle turntable was being offered for only £200. Before that, a Nakamichi

1000ZXL 'Limited' cassette deck (the much-prized 'gold' variant) made an appearance.

Amongst other items (including records!), I bought a working Ferrograph Series 7 tape recorder - a rare high-speed half-track stereo model with onboard Dolby B - for £40. In excellent physical condition, a minor repair and servicing are needed to restore it. I also set myself the target of assembling a 'beginners' vinyl system for less than £100. This objective was easily met courtesy of a Dual 505/Ortofon turntable (£25), Rogers amp (£30) and Wharfedale Valdes 300 speakers

(£10). What better way to introduce a youngster to the delights of music listening? Other joys included plenty of components (including valves and speaker drive units), a smattering of non-audio electronics (VCRs, computers, etc.) and non-functional equipment of various types for 'stripping' or repair. No wonder the show gets more popular with each year that passes.

The next Audiojumble takes place on Sunday 10th February 2013. www.audiojumble.co.uk



Specialist hi-fi equipment is hand-built in small quantities. It should therefore not shock you to learn that the mint Edgar CD-1 seen here, complete with valved output stage, was the very same sample David Price so positively reviewed in February 2008. Its owner, a member of the NAG-Fi audiophile club, hoped to get £750 for it.



Some audiophiles like high-end horn tweeters for a number of reasons - their high efficiency complements low-power Class A amplification, while wide dispersion aids stereo imaging. Decent dynamics and clarity are other draws claimed by proponents of the technology. This pair of vintage Altec 804a drivers and horns from the late 1960s were being offered for £200.



Quad's ESL-57 was the world's first production full-range electrostatic speaker. Despite being over 50 years old, it has a strong fan-base on account of its speed, accuracy and smoothness. It's difficult to drive, though, and those lower octaves could benefit from a subwoofer. But a pair for under £500? A vintage bargain, although a service would be sensible.



Like the Garrard 301/401, Goldring's Swiss-made GL78 is an idler-driven turntable with a massive platter. Its speed could be varied continuously, courtesy of a tapered motor shaft, between 16 and 78rpm. Long-overlooked, the GL78 (and its GL75 predecessor) are being rediscovered by audiophiles. This specimen, from a Dynatron stereo unit, could have been yours for a mere £50.



Some of the rarer and more desirable items tend to shift pretty quickly, despite high prices. This mint-condition Garrard 301 transcription 'table changed hands for £900. Its merits versus those of the later 401 are hotly-debated by the audiophile community to this day. The three-speed 301, which dates back to 1954, is often-partnered with a vintage SME arm.



Here we have a solitary Leak TL/12 Plus, a highly-regarded 1956-vintage valve power amplifier with a 12-watt output. This is an ultra-linear push-pull design based around a pair of EL84s (here, Mazda types). You would need two of them for stereo. Some believe this to be Leak's best sounding amp – thus the £500 asking price...



Any showgoer with £1,500 burning a hole in their pockets (some pockets!) might have been tempted by this well-preserved pair of 15in. Tannoy Monitor Gold speakers - built here into Lancaster cabinets. A classic 'dual-concentric' drive-unit, made from 1967 to 1974, the Monitor Gold is praised for its accuracy. It wasn't uncommon to find them in studios.



If you harbour an interest in valve technology, you'll appreciate that some method of 'tube testing' is a good idea. At least one enterprising Audiojumble stallholder offered a testing service with one of the big Avo units. These are expensive nowadays, so how about a 1938-vintage Radiometers one for £125? Unfortunately, it won't accept later valves (with B7G/B9A-type bases).



Although much of the joy of Audiojumbling can be attributed to the discovery of old vinyl and bygone electronic treasures, there's plenty of newer gear to choose from. Indeed, the Yaqin MC-100B shown here is still available; its £550 price tag represents a moderate saving. This Chinese amp, based around four KT88s, can operate in ultralinear or triode mode.



Back in the 1970s, the controversial turntable topic of direct-drive versus belt-drive was dividing audiophiles. Today, it's acknowledged that a properly-configured DD 'table – with the right arm and cartridge – can sound very good indeed. The Toshiba SR370, here with cutout for SME Series 2, is a good DD of the era. Only seventy quid, too.



In the world of tape recorders, Nagra is probably the most revered marque. These machines, popular with broadcasters and the film industry, are beautifully-made and perform impeccably. This Nagra IV-S, complete with 10.5 inch reel adaptors, wasn't for sale. It was part of a unique exhibition of Nagra hardware, entrance free to Audiojumble visitors, run by Jim Creed.



Gorgeous, isn't it? Who wouldn't want one to play 1/4in. master tapes! This Nagra T has speeds of 7 1/2ips, 15ips (with two different equalisation settings) and 30ips. Also offered is a VTR-style shuttle dial – something that tape editors lucky enough to work with it must have appreciated. This example was another exhibit in collector Jim Creed's exhibition.



Recent issues have extolled the sonic virtues of the Leak Troughline – a classic tubed FM tuner with 1950s origins. With new components and a modern stereo decoder, it can really sing! Anyone with an interest in these articles would have relished the chance to buy this early-sixties Troughline II (which covers Band II in its entirety) for £50



As for cassettes, there's nothing like a 3-head Nakamichi for playback (although the analogue replay of a Philips DCC deck is a surprisingly-effective alternative). Here we see one of two Nak 582s that were jostling for the attention of Audiojumble browsers. Serviced, and complete with instruction books, this one was going for a not-unreasonable £125.



Quite an unusual sight! Here we have a complete stereo Quad tube setup consisting of control unit, separate AM and FM tuners, stereo multiplex decoder, and a pair of Quad II valve power amps. This little lot could have been yours for a bargain £800. Add the aforementioned ESL57s, and you would have built a formidable setup for £1,300.



One of the audio world's rarest artefacts – a Thorens TD224 autochanger circa 1963, of which only 4000 were reputedly made. Based on the idler-driven 4-speed TD124, the TD224 could play 8 records of any size. It even compensated for 7in. singles without centre inserts by automatically-raising the adaptor. Rarity comes at a price, though; specifically, £2,400.

*Pictures by
Martin Pipe
and Adrian
Caspersz.*

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WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

TURNTABLES

REGA RPI 2010 £225

Pleasing sound, fine build and ease of set-up and use make this a great first 'real' hi-fi turntable.

REGA P2 2008 £300

Excellent value for money engineering, easy set up and fine sound.

REGA P3-24 2008 £405

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

MICHELL TECNODEC 2003 £579

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

FUNK FIRM VECTOR II 2009 £860

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



MICHELL GYRODEC SE 2005 £1,138

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

MARANTZ TT-15S1 2005 £1,299

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

ROKSAN RADIUS 5.2 2011 £1,450

Although getting expensive, the latest Radius is a highly grown up package with a flowing yet engaging nature; a fine package.



AVID DIVA II SP 2010 £2,000

New twin belt drive and power supply make this a more commanding performer, although there's a substantial price hike. Speed, dynamics and detail are hard to beat anywhere near the price.

INSPIRE ECLIPSE SEV2 12 2010 £2,349

Finely engineered, smooth and detailed sounding deck offering valuable twelve inch tonearm compatibility.

NOTTINGHAM ANALOGUE HYPERSPACE 2010 £2,390

Deliciously spacious, lyrical and beguiling sounding turntable, but lacks ultimate grip.

MICHELL ORBE 1995 £2,500

The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

DR FEICKERT WOODPECKER 2010 £3,445

Elegant deck with great low frequency solidity, coherent soundstaging and a precise midband.



LINN LPI2SE 2010 £3,510

Surely hi-fi's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel subchassis and Radikal DC motor add precision and grip to one of the world's most musical disc spinners. Expensive, though.

ACOUSTIC SIGNATURE STORM 2011 £3,612

An excellent high end design with a smooth, solid, open and lyrical sound and razor sharp styling and build.

FLETCHER AUDIO OMEGA .5 2010 £3,699

Charming high end turntable that's a fitting testament to the late Tom Fletcher.

PALMER 3 2010 £3,750

Eccentric hand built high end turntable with a pleasingly smooth, sweet and lucid sound.



E.A.T. FORTE S EVO 12 2010 £4,750

Excellent premium price turntable with power, precision and passion aplenty, but relaxed and easy going by nature too. Great value package with the Pro-ject Evo 12" arm option.

ACOUSTIC SOLID ONE 2007 £4,050

Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

SME MODEL 10A 1995 £4,556

Exquisitely engineered deck and SMEV tonearm combo that's an extremely accomplished performer with classical music.

AVID VOLVERE SEQUEL 2007 £4,600

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

BRINKMANN BARDO 2010 £5,845

Unique high end direct drive turntable with amazing grip and focus, albeit not the most romantic of natures.



McINTOSH MT10 2008 £8,995

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

EAT FORTE 2009 £12,500

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

TONEARMS

REGA RB25I 2009 £136

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

MICHELL TECNOARM A 2003 £442

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

ORIGIN LIVE SILVER 3C 2010 £599
Excellent mid-price tonearm with a clean and open yet lyrical sound.



HADCOCK GH-242 EXPORT 2010 £770
Consummately musical, lyrical sounding tonearm, but needs the right turntable. Excellent value.

SME 309 1989 £767
Mid-price SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

FUNK FIRM FXR II 2010 £1,175
Clever reworking of the ubiquitous Rega platform, the FXR II gives a wonderfully musical, almost unipivot like performance.



AUDIO ORIGAMI PU7 2007 £1,300
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.

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

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

SME SERIES IV 1988 £1,620
Offers nine tenths of the SME V's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

SME 312S 2010 £1,750
Twelve inch magnesium alloy armtube plus SME V bearings makes an impressive transcription tool with an insightful yet composed sound. Superlative build completes the package.



GRAHAM PHANTOM 2006 £3,160
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

TRI-PLANAR PRECISION 2006 £3,600
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

SME SERIES V 1987 £2,389
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

LINN EKOS SE 2010 £3,700
Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Has a commanding musicality all of its own.

OL ENTERPRISE 3C 2010 £4,500
Few if any pivoted arms come close to this arm's combination of liquid musicality and forensic grip.

CARTRIDGES AUDIO TECHNICA AT-95E 1984 £25

Great starter cartridge that's detailed and musical beyond its price. Superglue the stylus in for better sound!

AUDIO TECHNICA AT-F3/III 2010 £189
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

ORTOFON 2M RED/BLUE 2007 £60/£120
Modern, high resolution budget moving magnets that are always an engaging listen.



GOLDRING G1042 1994 £239
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

ORTOFON VIVO BLUE2011 £275
Super new budget moving coil cartridge from respected Danish manufacturer; a real step up from previous efforts.

DENON DL103R 2006 £295
Awkward to get working properly with a poor mounting arrangement, yet it rewards with a musical performance that makes similar priced cartridges sound cold.

DYNAVECTOR DV10X52003 £295
Distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

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

DYNAVECTOR DV20X-H2003 £395
Deliciously sweet sound with fantastic get-up-and-go makes this a great value budget MC. High output version works a treat with valve phono stages too.



AUDIO TECHNICA AT-OC9MLIII 2010 £399
New stylus and cantilever breathe life into this feisty, punchy and detailed performer.

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

LYRA DORIAN 2007 £649
Incisive and musical, this baby Lyra is one of the most powerful and revealing MCs at its price point. Beware the sharp treble, though!



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

ZYX R-100H 2005 £799
Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the best at the price, with a presentation all of its own.

TRANSFIGURATION AXIA 2007 £890
Musically adept and highly resolute cartridge with impressive tracking abilities. Top end lift means careful matching required, however.

BENZ MICRO WOOD SL 2010 £945
Highly finessed Swiss moving coil that plays music with riflebolt precision.



ORTOFON CADENZA BLUE 2009 £1,000
Musical, out of the box sound, allied to real finesse, makes this a great do-it-all high end moving coil.

ORTOFON CADENZA BRONZE 2010 £1,350
Smooth and engaging high end MC with a slightly warmer and more relaxed presentation than its superb bigger brother.

ORTOFON CADENZA BLACK 2010 £1,650
Ultra incisive, transparent and dimensional moving coil with grip and punch aplenty.

ORTOFON MC WINDFELD 2008 £2,250
Ortofon's new flagship MC is a sophisticated and alluring performer that takes the vinyl experience to a new level.

KOETSU RED K SIGNATURE 2007 £2,399
The new K Signature adds a hefty dose of insight and finesse to the already impressive Red and the results are fabulous.



DIGITAL SOURCES

MUSICAL FIDELITY V-DAC 2010 £170
Clear, concise, low distortion sound belies giveaway price. Supelative value for money.

CAMBRIDGE AUDIO DACMAGIC 2010 £230
A flexible new DAC, this is an impressively rhythmic and detailed performer.

ARCAM rDAC 2010 £300
Cracking budget DAC sporting a fulsome and musical sound with gorgeous build and styling.

MUSICAL FIDELITY MI DAC 2010 £400
Surprisingly sophisticated upsampling DAC with oodles of detail and air, but bass isn't quite as powerful as it could be.

STELLO DA100 SIGNATURE £750
Superbly finessed sounding DAC at the price, with strong driving bass and plenty of air and space.



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

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

ROKSAN KANDY K2 CD 2010 £900
A charmingly musical performer at the price, this is a surprisingly sophisticated CD player for the money.

BENCHMARK DAC-1S 2009 £930
Power, precision and poise - allied to real seat-of-the-pants musicality, this DAC justifies its premium price.

MUSICAL FIDELITY M3 CD 2011 £995
Excellent mid-price machine with slick slot loading and an open and inviting sound.

ELECTROCOMPANET PD-1 2011 £1,250
Quirky but highly capable digital convertor with an effective wireless radio option (£250) and balanced outputs.

SIMAUDIO MOON 300D 2010 £1,290
Lovely fluid sounding DAC with a deep, dark, velvety tonality.



CYRUS CD8 SE 2008 £1,350
Bespoke Servo Evolution mech makes this the most musically engaging machine at the price, with super smooth tonality to boot. Optional PSX-R adds bass and dimensionality.

DENON DCD2010AE 2010 £1,700
Powerful, open sound allied to a rich tonality and satisfying subtlety make this an excellent mid-price buy.

NAIM DAC 2010 £1,995
Superb high end digital convertor with a probing, punchy and forensically detailed sound.

MERIDIAN GO8.2 2011 £2,400
Everyman's modern high end CD player; the stylish, well made Meridian has an extremely enjoyable yet refined and accurate sound.

MARANTZ SA-KI PEARL CD 2010 £2,500
Finely honed affordable high end silver disc spinner, this has a musical lucidity that's unexpected at this price.



LEEMA ANTILLA IIS ECO 2011 £2,995
Stable and smooth yet superbly detailed and musically engaging, this is class of the £3,000 CD player field.

CHORD QBD64 2008 £3,000
Bespoke architecture gives a uniquely musical sound that's beguiling yet proffers dizzying incision and grip.

ELECTROCOMPANET EMC-1UP 2009 £3,450
Quirky yet extremely capable high end upsampling CD spinner, with a musical fluency that beguiles more than it impresses.



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

ESOTERIC X-05 2010 £4,495
Superlative 'affordable high end' CD/SACD spinner with excellent build, massive detail and great poise.

WEISS DAC202 2010 £4,600
Brilliantly open and insightful sounding DAC with a range of useful features.

ELECTROCOMPANET EMP-1/S 2011 £4,650
Epic in scale, lavish in tone and exuberant in its musicality, this is a memorable SACD spinner. Quirky in operation and modest in finish, though.

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

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

dCS DEBUSSY 2011 £7,500
Compact, stylish DAC bringing the gloriously smooth, svelte, spacious sound of dCS to a wider audience.

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

dCS PAGANINI DAC £9,599
Digital rarely sounds better; dCS's bespoke Ring DAC makes for power, punch and insight on an epic scale. Add clock and upsampler for an even more profound experience.



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

**NETWORK**

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

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

PHONO STAGES CAMBRIDGE AUDIO 640P 2009 £99
Excellent entry level design that raises the bar for budget phono stages. Crisp, smooth yet brightly lit sound on both MM and MC that's a vast improvement on most budget inboard designs.

GRAHAM SLEE ERA GOLD V 2004 £370
Warm, open and musical nature makes this a great budget phono stage.

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



CHORD CHORDETTE DUAL 2010
£799

Well presented mid price designed with detailed sound and USB input for archiving.

ASTIN TREW AT8000 2010 £880

Expansive, detailed, powerful sound makes this a leading sub-£1,000 contender.

A.N.T. AUDIO KORA 3T LTD 2010 £995

Exceptionally musical and natural sounding all discrete transistor phono stage, with highly lucid, valve-like presentation.

AVID PULSUS 2010 £1,100

Powerful, propulsive, expansive sound puts this right at the top of the £1,000 phono stage tree.

QUAD QC24P 2007 £1,200

Dynamic performer that can be used on its own as a complete phono-level preamp.

ICON AUDIO PS3 2008 £1,500

Super sounding valve phono preamplifier, with an expansive, engaging and organic nature that makes vinyl sheer joy!

SUTHERLAND 20/20 2010 £1,999

Well engineered, smooth sounding solid-state phono stage with a charm of its own.

EMILLE ALLURE 2010 £2,495

Just as the name suggests, this is a lovely way to play LP with an exceptionally open and lucid sound.

**AVID PULSARE** 2010 £3,800

This superbly built, well specified phono stage has a powerful and authoritative sound that bristles with detail and energy.

WHEST PS.30 RDT SE2011 £4,500

The least solid-state sounding Whest we've heard, this builds on the family strengths of precision and grip but adds a welcome poise and fluidity.

NAT AUDIO SIGNATURE 2011 £5,633

Sophisticated sounding, unusually engineered MM and MC phono stage, but faces stiff competition at this lofty price.

AMPLIFIERS**ICON AUDIO STEREO 40/III** 2010 £1,200

Excellent starter tube integrated, with plenty of detail and an expansively musical sound.

**AUDIOLAB 8000S** 2006 £400

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

NAIM NAIT Si 2007 £725

The italic 'i' version remains one of the most musically competent and dynamically engaging integrateds at the price.

CAMBRIDGE 840A V2 2007 £750

Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

SUGDEN MYSTRO 2010 £1,225

Sugden's first Class AB integrated in a long time surprises; rollickingly good fun, it loses surprisingly little in smoothness to its Class AB siblings.

NAIM NAIT XS 2009 £1,250

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

CREEK DESTINY 2 2010 £1,445

Beautifully voiced integrated amplifier with a distinctly seductive, tube like sound. A solid-state superstar!

SUGDEN A21A S2 2008 £1,469

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

**CYRUS 8XPD** 2010 £1,500

A quality integrated that suits all genres of music providing insight and clarity in a compact but flexible package.

ANATEK AS0R 2007 £1,600

Simple integrated amplifier with super bass grip and effortless dynamics.

VINCENT SA-236MK 2010 £1,749

Big, powerful and expansive sounding hybrid transistor amplifier, with a lively, musical nature.

NAIM SUPERNAIT 2007 £2,475

Integrated *tour de force* from Naim that combines impressive functionality and connectivity with super sound.

AUDIO RESEARCH V5160 2009 £3,298

Load of tube open allied to a strong bass and smooth open midband makes this a grin-inducing listen.

LEEMA TUCANA II 2010 £3,495

Polished high end integrated amp that combines power, detail and genuine musicality with a good range of facilities.

**SUGDEN IA4** 2007 £3,650

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

QUAD II CLASSIC 2010 £4,500

Beautiful retro styled integrated amplifier with a subtle, supple sound - although needs matching to speakers that are easy loads.

QUAD II CLASSIC INTEGRATED 2010 £4,500

Thoroughly modern music maker with classic style and great pedigree, this amp sings with gentle music but is no headbanger!

SIM AUDIO MOON 6001 2010 £5,750

Sturdy build, useful facilities and a wonderfully relaxed, seamless and even-handed sound will win this many friends.

MUSICAL FIDELITY AMS3Si 2010 £6,000

One of the best high end integrateds we've come across, this combines hear-through transparency with musical get-up-and-go.

DARTZEEL CTH-8550 2010 £16,500

Charismatic and quirky high end solid-state integrated amplifier with superb sound and a charming visage.

HEADPHONE AMPLIFIERS**FIDELITY AUDIO HPA 100** 2011 £350

Great little headphone amplifier with a lively yet refined and open sound.

MUSICAL FIDELITY X-CAN V8 2008 £350

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

PREAMPLIFIERS**CREEK OBH-22** 2008 £350

Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

ICON AUDIO LA-4 2011 £800

Uses early 6SN7 triodes for liquid sound, has plenty of gain and remote control.

NUFORCE P-9 2007 £2,200

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

**DPA CA-1** 2010 £2,650

Excellent solid-state preamp with a meticulously detailed and propulsive sound, but a deep velvety tonality.

MELODY PURE BLACK 101D 2007 £3,295

The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

MF AUDIO CLASSIC CII SILVER 2010 £4,500

One of the best preamplifiers we've heard at any price, this transformer coupled marvel does very little wrong; its powerful, clean, open yet delicate sound is unmatched at or near the price.



MODWRIGHT 36.5 PRE/PSU

2010 £5,995

Exceptionally open and expansive, yet musically expressive sounding high end preamplifier.

MUSICAL FIDELITY PRIMO

2009 £7,900

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

POWER AMPLIFIERS

XTZ AP-100

2010 £520

Decently smooth yet usefully muscular, this power amp punches way beyond its price point in sonic and value terms.

QUAD 909

2001 £900

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

NUFORCE REFERENCE 9SE V2

2006 £1,750

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



DPA SA-1

2010 £2,850

Pacey, engaging and rhythmic almost to a fault, this solid-state power amplifier isn't the world's most powerful but is none the worse for it.

QUAD II-40

2005 £3,230

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

ELECTROCOMPANIET NEMO

2009 £4,450 (EACH)

The Norwegian power station is as cool as a glacier tonally, yet impresses with its sheer physicality and fleetness of foot. 600W per channel makes for a massive bang per buck.

ICON AUDIO MB845 MKII

2010 £5,500

With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



QUAD II-80

2005 £6,000

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

MUSICAL FIDELITY AMS50

2010 £7,000

Mighty, assured high end full Class A integrated proffering icy clarity allied to real musicality. Lacks the lucidity of the best tube amps but redeems with power and punch.

LOUDSPEAKERS

Q ACOUSTICS 2020

2010 £140

Great little standmounters with a friendly, fun yet surprisingly refined gait. Excellent value starter speakers.

ACOUSTIC ENERGY NEO I

2007 £199

Tidy and well balanced standmounters with pleasing clarity and detail.

MISSION MX2

2011 £200

Sophisticated sound alloyed with real musical insight makes these small standmounters super value for money.

ACOUSTIC ENERGY NEO I v2

2010 £225

Civilised sounding speaker with fast and tuneful bass.

B&W 686

2007 £279

B&W's new baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

WHARFEDALE DIAMOND 10.3

2010 £290

Great small standmounters for audiophiles on a budget; dry punchy sound with impressive soundstaging at the price.

MORDAUNT SHORT AVIANO 2

2010 £300

Classy sounding standmounter at a still affordable price.

KEF IQ30

2009 £330

Beautifully built, classily styled standmounters with exceptional image projection and a very clean, detailed sound.



USHER S-520

2006 £350

Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

XTZ 99.25

2010 £640

Disarmingly open and refined at the price, these standmounters bring unexpected civility, refinement and insight to the price point. Exceptional value for money.



ACOUSTIC ENERGY AEI CLASSIC

2006 £845

Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.

SPENDOR S3/5E

2004 £950

A natural successor to the BBC LS3/5a, whose impressive neutrality, imaging and evenhandedness makes this a superior, if less charismatic, loudspeaker.

MY AUDIO DESIGN MY1920

2011 £1350

Exceptionally smooth, spacious and refined mini monitors that beguile and excite in equal measure.

ELAC BS243

2010 £1,000

More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.

RRR FS100

2007 £1,055

Mind-boggling amount of loudspeaker for the money. Big and sturdily built with serious bass and awesome soundstage scale. A real bargain.



ONE THING AUDIO ESL57

2007 £1,450

One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

GURU QM-10P

2007 £1,595

Quirky but adorable standmounters that are way off the pace in respect of detail and power, but well capable at playing a tune and pulling you in to the music.

USHER BE-718

2007 £1,600

Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

MARTIN LOGAN SOURCE

2008 £1,600

Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

SPENDOR S8E

2008 £1,895

Generously large, silky smooth delivery, this dynamic sounding floorstander is an excellent all rounder.



ISOPHON GALILEO

2007 £2,100

Big standmounters that really grip the music and offer quite startling dynamics and grip.

MONITOR AUDIO PL100

2008 £2,300

The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.

EMMINENT TECHNOLOGY LFT8B

2010 £2,300

Brilliant ribbon/moving coil hybrid with seamless, delicate and expansive yet tremendously musical nature.

PMC OB11

2008 £2,950

Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**MY AUDIO DESIGN
MYCLAPTON SE 2010 £3,299**
Powerful, dynamic, musical yet refined, this unconventional point-source design yields dramatic sonic benefits.

MAD MY CLAPTON GRAND MM 2010 £3,599
Distinctive coaxial standmounters with wonderful soundstaging, bright lucid midband and true musical insight.

YAMAHA SOAVO 1.1 2009 £3,000
Musical, transparent large floorstanders with impressive dynamics and cohesion. Excellent build and finish.



MOWGAN AUDIO MABON 2007 £3,995
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

B&O BEOLAB 9 2007 £5,000
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.

TANNOY DEFINITION DC10T 2010 £5,000
Wonderfully wide and open, super fast and amazingly engaging to listen to.

ECLIPSE TD712z/2 2011 £5,100
Flawed genius, and wilfully so. These loudspeakers don't do everything well, but what they can do is profound and entralling; rhythms, dynamics and soundstaging.

ARS AURES MI 2006 £5,995
Sublime build and finish allied to an insightful, assured and even-handed musical performance makes these an essential high end audition.



QUAD ESL-2905 2006 £5,995
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

SPENDOR ST 2010 £5,995
This classy sounding, superbly presented big floorstander will appeal to those seeking high end sonics with subtle looks.

REVOLVER CYGNIS 2006 £5,999
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

VIVID VI.5 2010 £6,000
Breathtaking transparency, superlative coherence and dizzying speed make these one of the best standmounters ever made - providing you like their 'studio sound'.



GERMAN PHYSIKS LIMITED II 2011 £7,800
Don't be fooled by the austere looks; this is a superbly enjoyable omnidirectional speaker with a wonderfully fast, expansive sound.

USHER BE-10 2009 £10,500
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...

B&W 801D 2006 £10,500
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



ISOPHON CASSIANO 2007 £12,900
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

REVOLVER CYGNIS GOLD 2010 £15,000
Vast in scale with effortless dynamics and an easy, barrel chested bass, these big bangers are great for lowish power tube amps. Large room needed!

MARTIN LOGAN CLX LINEAR 2010 £15,990
Meticulously crafted electrostatic that's free from traditional limitations, this is one of the very best loudspeakers money can buy.

**ACCESSORIES
WADIA I701 2010 £349**
The first iPod dock to extract the music digitally, letting you hook your little Apple direct to a DAC for superior sound.

ISOTEK AQUARIUS 2010 £795
Highly accomplished premium priced mains conditioner that delivers the sonic goods, unlike so many others.

TOWNSHEND MAXIMUM 2003 £800
Classy ribbon supertweeter with flexible level settings and cool styling - you'll be amazed at the difference it makes, especially with Quad electrostatics.

**HEADPHONES
JAYS V-JAYS 2010 £49**
Wonderful little budget over-ear portable phones with a clean, smooth sound to beat the best of the rest at the price.



SENNHEISER MX-550 2005 £19
Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

SENNHEISER PX-100 2002 £29
Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.



GOLDRING DR150 2006 £70
Excellent build and fine sound makes these budget cans superlative value for money.

SENNHEISER HD-590 1998 £199
The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

SENNHEISER HD-650 2004 £250
A super all round reference design with crisp, detailed and even sound allied to superlative build and comfort. Cable upgrade yields great results.

SENNHEISER HD800 2010 £1,000
The ultimate expression of the Sennheiser philosophy offers massive speed, clarity and insight, although lacks some of the charm of the softer, more beguiling rival Staxes.



STAX SR-007T OMEGA II/SRM-007T 2006 £2,890
Simply the best headphones we've ever heard at any price, these sweetly translucent electrostatic earspeakers are like no other headphone, or loudspeaker for that matter...

INTERCONNECTS**TELLURIUM Q
BLACK** 2010 £276/3m

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

**TECHLINK WIRES
XS** 2007 £20

Highly accomplished interconnects at an absurdly low price. Stunning value for money.

**WIREWORLD
OASIS 5** 2003 £99/M

Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

**CHORD COMPANY
CHAMELEON 2** £90/M

One of our favourites, these are musical performers with a smooth yet open sound.

**DNM RESON** 2002 £40/M

Neutral and transparent - a steal!

**VDH ULTIMATE
THE FIRST** 2004 £260/0.6M

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.

**TCI CONSTRICTOR
13A-6 BLOCK** 2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

MISSING LINK CRYO REFERENCE 2008 £375

Currently our favourite 'affordable high end' interconnects, with a deliciously smooth, open and subtle sound without a hint of edge or grain. Superb value, inasuch as it's as good as some designs at three times the price.

TUNERS**DENON TU-1500AE** 2006 £120

Excellent entry level analogue tuner; slick sonics and fine feature count make it a bargain.

**CAMBRIDGE
AUDIO 640T** 2005 £250

Sweet sounding digital/analogue hybrid with fine build and finish at the price.

ARCAM FMJ T32 2009 £550

Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.

**CREEK CLASSIC
TUNER** 2006 £550

No tuner offers better sound per pound; wonderfully three dimensional and smooth from bottom to top.

MICROMEGA FM-10 2010 £750

Don't let the modest proportions fool you, this is a state-of-the-art modern analogue tuner with bespoke internals giving a warm, expansive sound.

MYRYAD MXT-2000 2005 £800

Sumptuous sound and excellent build is all most will ever need in a tuner; superb.

MAGNUM DYNALAB MD-90T 2010 £1,295

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.

**MAGNUM DYNALAB
MD-100T** 2006 £1,895

One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

**SYSTEMS****YAMAHA CRX-M170** 2007 £200

One heck of a lot of quality performance on DAB, CD and FM for £200! Optional matching £120 NX-E300 loudspeakers aren't too shabby either.

TEAC DR-H300DAB 2008 £329

Nicely built and styled mini with fine performance on all sources that even plays DVDs!

**NAD C-715DAB** 2008 £429

Small, neat looks cover a truly capable system that shows just what a compact design can achieve.

ARCAM SOLO MINI 2008 £650

Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

SHANLING MC-30 2007 £650

Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.

**PEACHTREE AUDIO
IDECCO** £1,000

Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.

ARCAM SOLO 2005 £1,249

Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

LINN CLASSIK MUSIC 2008 £1,250

Neat update of the original and best one-box stereo system; superbly musical sound beats equivalently priced separates.

NAIM UNITIQUITE 2010 £1,350

Great little half width one-box system with truly impressive sound allied to a wealth of source options.

**MERIDIAN F80** 2007 £1,500

Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product; most see sense when they listen to it...

**AURA NOTE MUSIC CENTRE** 2007 £1,500

Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.

NAIM UNITI 2009 £1,995

Uniquely versatile one box music system with excellent ergonomics and sonics to match. A landmark product for Naim.

**LINN CLASSIK
MOVIE** 2007 £2,250

Superbly built all-in-one that offers excellent sound across all formats and is surprisingly easy to use.

**MERIDIAN SOOLOOS 2.1** 2010 £6,990

Thanks to its crisp styling and bright, colourful touchscreen, plus excellent search facilities this is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.

MARANTZ 'LEGEND' 2007 £22,000

The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.





Philips 9710M Full Range Loudspeaker Chassis

Haden Boardman reports on another classic Philips audio component, almost unknown in the UK. Could this simple loudspeaker unit could be the answer to all our vintage valve amp needs?

As I pointed out last month, N.V. Philips' Gloeilampenfabrieken's input into the world of audio has always been a little under-rated. The Dutch 'light bulb' maker really has, as much as any other, helped further the course of high fidelity. I can forgive the Compact Cassette: as a very young boy this was my only source of musical entertainment (even though as a very young kid, I was aware that LP was better, and the one album I owned was kept at Grandad's for safety!).

These days, I am even softening on CD (although the digital side really is pure Sony... amazing seeing Philips had a major holding in the rival Japanese company Matsushita at the time).

But the classic Mullard 5-10 and associated tubes/valves are straight from the labs. at Eindhoven, as are

the 9710M full range loudspeakers featured here.

Full range speakers: you either love them or hate them. From early days I have been a huge fan of Lowthers, Goodmans Axiom 80s and Axiettes, full rangers, as well as almost wanting to pay hero worship to the designs of Ted Jordan & Paul Voigt. I had read about the Philips 9710M in various Philips 1950's publications, but it is only within the last five years I managed to secure a set (ok, about three pairs) and it has taken that long to select a cabinet design, have the wood cut, and have them assembled (a big thanks to Dennis & Lil for finally finishing them off for me).

People seem to be under the impression that a full range speaker is some budget thing, lower than a 'two way' etc. Nothing could be further than the truth. To cover the entire audio bandwidth with a single

unit is a real technical achievement. Most speakers prior to 1960 were full range, in theory. It is easy to forget that up until 1955 most people still played shellac 78 rpm records, with pretty poor reproduction quality. Decca introduced the FFR system; Full Frequency Range Recording immediately after World War II, which really was the world's first 'high fidelity' system in both recording and replay. Micro groove followed from America with the rival CBS twelve inch 33.3 rpm LP, and the seven inch RCA 45.11, all of which extended fidelity an octave higher than the standard ten inch 78 rpm disc. So prior to this point 10,000Hz was high enough... anything much more would simply reveal hiss and noise. By today's standards, a lot of pre 1960s so called full range units simply do not have the bandwidth to cover what we expect today.

Managing to produce a single

speaker that can cover 50Hz to say 16kHz is not very easy. To make a conventional two way speaker is much less expensive and easier. A full range speaker must have a very tight gap in the annular pole plates on the magnet structure, which must be precision machined. The voice coil must remain very light, and literally bathed in magnetic flux from the magnet.

Because of this tight structure, there is not a lot of room for cooling, which is why a lot of full range units seem a little low on power handling; simply there is not as much cooling air in the voice coil gap. Assembly is, of course, much more critical.

The advantages are a true point source (the size of the voice coil) is there's no need for a crossover. In a conventional multi way speaker a single small crossover inductor with a 0.4dB insertion loss loses 10% of power, making a mockery of high damping factors, expensive cables etc. This simplifies design.

Disadvantages of full range



Rear of Philips 9710 'M' with pressed steel chassis and solid pole plates.

phase?

The Philips 9710M dates from the early 1950s, and was still in production in the very early 1980s. Philips produced a massive array of speaker chassis; anything with an 'M' as a suffix is full range. 'W' standing for woofer, and 'T' for

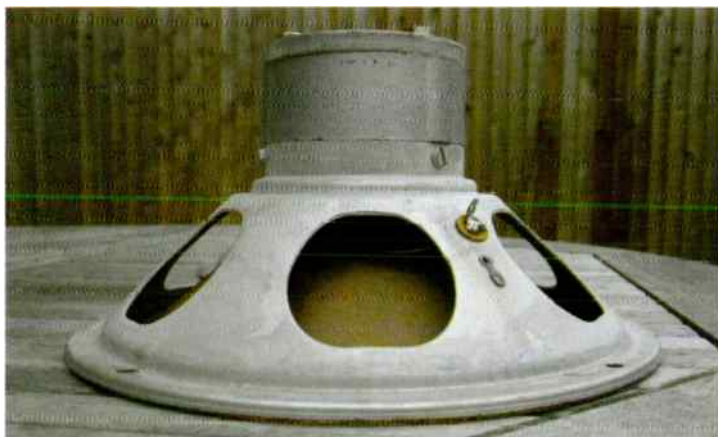
common), and the unit boasts very sophisticated shaped copper plated pole pieces. The cone is of course paper, with an excellent cambric type roll surround; the main cone is supplemented with a 'whizzer' cone. Specifications are quite impressive, no less than 97 dB per Watt (a real rating) with frequency response from 50Hz to 20,000Hz. Impedance measured an even 8.9 ohms on all five of the six units I own (the sixth was shorted voice coil!), and this was totally constant, making a very smooth and easy load for an amplifier.

Depending on speaker enclosure size and type, power handling is between ten and twenty Watts; which combined with the high sensitivity does make for quite loud listening of lower power valve amps.

These speakers must be used with valve electronics. They 'self damp' compared to modern units, and will sound quite rough on a more modern solid state design.

Philips have chosen this speaker to exhibit a rising high frequency response past 2,000Hz; this is not a speaker to fire directly at you.

Enclosure wise, none of the



Note solid Alnico magnet, and much larger pole plate than average.

designs, apart from lower power handling, is restricted dispersion, depending on cone size and profile, giving more directional sound; the larger the cone, the more directional the sound becomes, as the voice coil becomes quite recessed in the main cone.

One way around this directionality is to fit a sub cone, sometimes called a 'whizzer cone'. These were first fitted to the classic 1930s Voigt speakers, a Paul Voigt patent. And how many millions of speakers have been produced with this extra cone? Arguments remain as to how 'good' or 'bad' this idea is; there is clearly a delay in time between the main cone and the whizzer cone. Is it as bad as a conventional speaker in which the tweeter is totally separated and there are various capacitors and inductors making a mess of the timing and

tweeter. Other suffixes are 'A' for the 800 ohms version (see last month's amplifier article) and 'C' for the ceramic magnet version, which I have yet to evaluate.

'Sq' is a 'squawker' or mid range unit! Size wise, it is a bit of an oddity, the overall frame size is 216 1/2 millimetres, and the speaker requires a baffle cut out of 192 1/2 millimetres. The 9710M mounting screws on 203.2 mm. The chassis is standard pressed steel, and looks nothing fancy. On early versions a pretty substantial Alnico magnet is fitted (most

Alternative upward firing arrangement of the 9710'M', as recommended by Philips.





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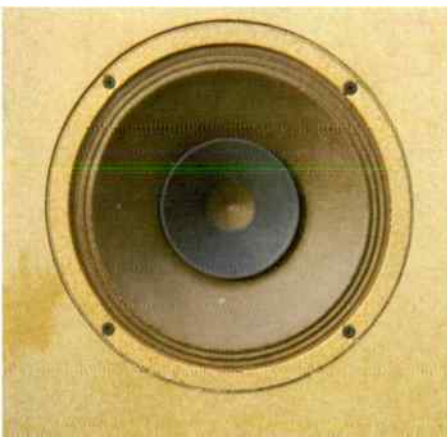
units I managed to purchase came in cabinets. Philips Technical Library offered a choice of several, to quote the native Dutch, 'akouestische' boxes. Some double units, some reflex, the 'best' possibly being a simple four cubic foot sealed box; the design I chose to evaluate the units. (for construction and cutting plans, see 'box out'.) The enclosures loosely filled with natural lamb's wool wadding (OK loft insulation!).

My speakers were angled in at 45 degrees, their axes crossing over in front of the listening position. Amplification was via a modified set of the little Heathkit mono blocks featured a month or two back, passive volume fitted, and a mix of Garrard vinyl source, and classic Marantz Project DI TDA1541 DAC.

The results were simply amazing. First thing was stereo image. On the audiophile recording of Sara K, the speakers seemed to simply have disappeared, a strong centrally located stereo image left the performers right there in the middle of the room. It was a real shock. Playing the more usual Jimmy Smith 'The Cat' album again showed quite amazing stereo perspectives.

For those used to 'ringy' dome tweeters, the upper treble may seem a little recessed, but it is not, in fact far from it.

Bass was lively and accurate, using a sealed box, with no 'tuned'



Two 'whizzer' cones; the main cone has a cambric style termination.

reflex port. There was real texture and quality in the bass too. In the four cubic foot enclosure featured here, I accept some Prog Rock fans may require more stimulus, but the speaker was accurate and responsive. The lack of hysteresis in the roll surround helps as well; conventional 'rubber' or 'plastic' surrounds selectively reflect back bass and midrange frequencies into the cone, rather than terminating them correctly, this again is a 'roll surround'



advantage.

The midrange reflected whatever was played... quite awesome.

Disadvantages and demerits? They are directional; you have to sit in your central chair. Get it wrong and they can be quite 'spiky' to listen to. And valve only amplification!

For those used to bass reflex coloration, and dome tweeter ringing, they may sound a little flat at first, but persist. One passing listener was a little shocked at just how much better these devices were in comparison to his own well-known 'Reference' speakers. The Philips speakers simply outclassed them.

A blown unit is scrap. Nothing can be done to fix them. And with the wrong amps, solid state, there is no safety area here; be warned. A ten Watt per channel valve amp is the ideal combination; in an average sized twelve by thirteen foot room, this kind of combination would produce 107 dB (close to the speaker), which is very loud.

Sales of this drive unit in the UK appear to have been very minimal. The speaker was not sold by Mullard, but by Philips Musical Instruments Division as an eight inch unit (priced at 6 1/2 gns. in 1957) with the option of the larger twelve inch unit for 10 gns (passing note; same efficiency, rougher response on larger speaker, but 30 watts power handling).

On the Continent they are much easier to find; four



A pair of well engineered full range Philips drive units.

of my six came direct from Holland. Prices have begun to rise, but it is still possible to find a good working set for under £200 on a well know internet auction site. The cabinets shown here are made from 25 millimetre High Density Fibre board. The timber was supplied and cut at a very well known National DIY warehouse for less than £35 a pair of boxes. You might have to do a bit of woodwork, but for this kind of money, this kind of performance is simply amazing... Highly recommended.

Our completed four cubic foot cabinets and units, simple construction.



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Princess Diana turned to him and said, 'I hear that you used to be a singer.'



paul rigby

One of the things that I pride myself on is my eclectic musical tastes. Hence I bounce from Frank Sinatra to Frank Zappa, from prog rock to avant garde electronica and from eighties indie bands, to cold wave outfits to vocal harmony groups and Johnny Cash to John Foxx. I'm never satisfied, though, I am always looking for new music and new sounds.

But to the point...and a walk in the park. Not me, you understand, but editor, Noel Keywood who bumped into the boss of the Cooking Vinyl record label in the park. Conversation wandered to the late Jackie Leven, a Scot's-born singer-songwriter and a favourite of Noel's, and Cooking Vinyl's stewardship of a host of Leven's albums.

Talking to Noel about the meeting, my curiosity was tweaked. This folk, blues, rock, country cult legend, who slept rough and dossed in squats, started singing in 1971, released four albums with his band, Doll By Doll between 1979 and 1982, was mugged and injured his vocal chords in the process, losing his falsetto voice, was then almost killed by drink and drugs in a subsequent depression, stopped singing for years, took himself off heroin, started a charity to attempt to help others (called the Core Trust (www.coretrust.co.uk) and then, to top it all, managed to get Princess Diana to act as patron.

"He told me that when he was setting up his charity Princess Diana turned to him and said, 'I hear that you used to be a singer.' He replied with, 'I am a singer!'. So she said, 'Go on, sing something then.' He did

and that was the catalyst to get him into music again". That was Deborah Greenwood, Leven's partner in song and in life for fifteen years.

I had to know more. So I tracked down Greenwood and asked her more about this remarkable man.

"He was a big scary bloke, of the first order," said Greenwood. "Yet, he was also a huge, gentle, sweetheart and people loved him dearly. He was a gentleman and a gentle man. The other side was this big, half Romany, scary, wild haired, real man of the woods. If he got pissed off, Jackie would disappear and sleep under hedges for a few days. Yet he was also gregarious and fun to be around. He could be moved to write a song about a horse, an elderberry bush or a hen's egg but also tackle political – with a small 'p' – matters. He was also an exceptional singer. He developed into this deep baritone that, in the nicest possible way, could caress the knickers of you."

A talented man: a singer, songwriter, poet and producer who taught himself to play guitar when he was fourteen, created his own tuning and played with great exponents such as Pink Floyd's David Gilmour and Ex-Fairport Convention man, Richard Thompson, Leven was a real audiophile.

"He cared about the quality of the music," said Greenwood. "He loved the warmth of analogue and, for a while, he fought against using ProTools until he slowly became comfortable with it but only on his terms. If there was a solo, for example, it was going to be a performance, not a paste-up of several solos. He liked the little mistakes you had within a live take."

Leven found it easy to get on with everyone. He was interested if you were interesting. A lot of his fans were men who thought that he could go to the darkest places and report back so we don't have to go there but, "Jackie didn't have the filters that you and I have," said Greenwood. "He felt a sense of 'otherness'. If someone was lonely, even if it was an animal, Jackie would be seriously upset by it. The rest of us can block it out but Jackie had none of that, he resonated with that. He had true empathy. It made life difficult and not very practical. You felt like saying, 'For goodness sake, toughen up a bit,' but the point was he was doing the job for us. He was saying: stop, look, notice, look what I'm seeing, feel what I'm feeling, you're walking by, you're not seeing it."

Of the many songs sung by Leven, Greenwood has three favourites:

'King Of the Barley' – what the old Scots guys called the drunk in the corner of the pub. He talks about himself and how utter loneliness can take over at certain times of life.

'I Say A Little Prayer' – I challenge any man not to play it to the woman he loves and for her not to sigh. Although she'll probably fall in love with the voice on the record.

'Call Mother a Lonely Field' – about the separation from a Mother. A piece of stirring Celtic soul and rock and a well recorded song.

Jackie Leven died on 14 November 2011, at the age of sixty-one, after battling prostate cancer. Knowing more about Leven, I will certainly check out his work. If you do too, check out the Cooking Vinyl website on www.cookingvinyl.com. ●

TWIST

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"my record collection has a great deal in common with Tribbles!"



tony bolton

Cast your mind back to the original Star Trek series and there was an episode called "The Trouble With Tribbles". Tribbles were small furry creatures that were able to breed at the rate of 10 baby Tribbles every twelve hours. They also had an ability to calm and relax humans.

I have come to the conclusion that my record collection has a great deal in common with Tribbles! I leave a few records in a corner for a little while, come back and the number of discs has miraculously expanded. I have assured all members of the household that this is nothing to do with my regularly passing charity shops and junk shops. I am convinced that once a record collection gets to a certain critical mass it expands of its own accord.

The results of all this breeding activity on the part of my vinyl has been a steadily growing collection of discs over the 35 years since I first started buying music. They have now got to the point where they form a line across the front of the TV stand in the front room. They are appearing underneath the furniture, and are forming up in neat, foot square groups around the upstairs listening room. Needless to say this has been causing a few problems; notably, it taking ages for me to find the record that I want to play, and I periodically trip over the things. Therefore something had to be done to alleviate this problem.

My upstairs listening room is about 11 feet by 8 feet, with shelves filling one alcove that are loaded with 78s and some classical LPs. Behind the door are shelves that climb the wall, housing the hi-fi and a total of

8 feet each of both LPs and singles. There are also six home made MDF record boxes, each measuring 14 inches square. Despite all of this I was several feet of shelving short to house the records already in the room, plus the overflow downstairs. There was one piece of wall available, beside my oak bookcase, so I explored the cost of shelving it out in oak, polished to match the bookcase. (This is a late '20s art deco design, in a lovely honey coloured waxed oak). After recovering from the shock of the cost of this idea, I looked at using Contiboard with an oak effect vinyl finish.

I am the first to admit that the look of these synthetic materials has improved drastically over the last few years, however the grain effect didn't satisfy me when a sample was placed beside the bookcase to see the comparison. So for the last few weeks I have been scouring the local second hand emporia and eBay for some sort of suitable cabinet or materials, that are a) affordable, and b) close enough to where I live to make collection practical.

Eventually I had the luck to win a hand made record cabinet that has three shelves, each 3' long, with 10 dividers on each level. The finish and graining looked to be a good match with the bookcase, and the style, although quite plain, was pleasingly balanced. I guessed it dated from the early '50s.

Collecting it required an hour long journey into deepest Somerset. The cabinet proved to be even nicer in real life than the eBay photograph, and was carefully fed into the back of the car with about 1/4 inch clearance on either side.

Once it was installed back at

home I braced myself for the biggest sorting out that my record collection has had in a great many years.

Part of my approach to exploring music has been to take periodic leaps into the unknown, trying something that I have never heard of before, but that looked interesting. If I liked it, then it stayed. This has resulted in music that compositionally spans 700 years, the earliest mechanical pressings in my collection dating from 1906. It has also meant that a fair number of duplicates have built up, as I have either found better condition copies, or learnt about the differences between pressings. So this last week has been spent with me working my way through well over 40 feet of LPs, comparing duplicates, and – especially in the classical and opera sections – sorting out whose recording of whichever piece I actually prefer.

It soon became apparent that the new cabinet was not going to house all of the overflow, so the collection has been arranged with space calculated in for some more record boxes. These will be half the width of the others, to fit beside the cabinet, and another two full size ones will be built to house the remainder in the front room.

The results of all of this are that I can find records easily. There is space to walk around without risking injury, and a level of tidiness in both the front room and my listening room that hasn't been possible for a very long time. There is also an 'out pile' that is currently over three feet long.

All I have to do now is perform a similar exercise on the singles and the 78s which are also beside, behind and below every bit of furniture in the house, and just hope that they don't start breeding again too quickly. ●

Vinyl is black!



The Evo ! What an evocative name and rightly so too! The SL-1200 evolved from a Hi Fi turntable into a DJ deck and now we turn it back into a Hi Fi turntable again! Fitted with the legendary SME 309 tonearm and the Audio Technica AT33EV your emotions will run wild. The AT33EV is itself an evolutionary cartridge hence its EV suffix and matches the SME 309 so well. We have worked with direct drive turntables and moving coil cartridges for over 30 years now and the EVO has evolved into a mature product that is quite simply a world beater. We can supply completely new units with 5 year guarantees or we can convert your own, even if you bought it used.

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TX-tasy

With its good looks, strong performance and more features than you can shake a (USB) stick at, Martin Pipe finds that Onkyo's TX-NR818 AV receiver extends a fine tradition



The TX-NR818 - Onkyo's latest foray into the world of mid-range AV receivers - looks simply gorgeous. Its overall styling is strangely reminiscent of some recent Arcam AV hardware, which is pitched at a higher rung of the market. But while Arcam has its heritage in (relatively!) minimalist hi-fi equipment, Onkyo goes the other way. True to form, the company has packed a considerable amount of functionality into the THX Select 2-certified TX-NR818 that ranges from Audyssey room correction, through MHL smartphone AV connectivity and ISF-calibrated video processing, to compatibility with the popular Spotify music-streaming service. Oh, and there are control Apps for iOS and Android. Nobody could ever accuse Onkyo of doing things 'by halves'...

The elegantly-uncluttered front panel gives you source-selection, standby, 'Pure Audio' and volume controls, together with a fluorescent display that indicates source name

(this can be customised in the menus), which audio channels are operating and volume level. More info about the selected input is available by pressing the 'display' button on the rather dowdy handset - the design of which is a disappointment. Although it benefits from partial backlighting, its operational logic initially takes some getting used to; some of the buttons have multiple functions, depending on how the unit is being used.

Lower the front-panel drawbridge and more controls are available. From here, menus can be configured, soundfields selected and the radio tuned. The TX-NR818 supports up to two extra 'zones' - depending on configuration - and from here you can determine which of the available sources can be routed to each. Onkyo was the first manufacturer to sensibly place a HDMI port on the front panel, and the TX-NR818 is suitably-endowed (it's compatible with the aforementioned MHL, which is built into modern high-end smartphones).

Add to this a front-panel USB, composite/stereo analogue AV and an optical port, and you have a sensibly-designed package.

In addition to the front-panel HDMI input are no fewer than seven on the rear. A total of eight I.4-compliant ports should be more than enough for anyone - and the good news is that they're compatible with 3D and, better still, DSD code from SACD!

In terms of 'conventional' digital audio inputs, the TX-NR818 gives you two S/PDIF optical ports and three coaxial ones - all of which can be assigned to the input of your choice. It's a shame that no optical output (for recording) has been provided; indeed, there's no analogue 'tape loop' either. A sign of the times, maybe?

Also reflecting modernity are a rear-panel USB port and Ethernet. Wi-fi isn't built into the AVR, as it is on Sony's STR-DN1030; if wireless is important, a compatible USB dongle is essential.

Still on the IT theme, Onkyo has provided an analogue VGA display input for PCs that don't have HDMI/DVI; serious gamers and home-cinema PC users will almost certainly be using the digital option. Two component and five composite video inputs, all user-assignable and accompanied by two-channel analogue audio, are provided.

Those are the inputs; what of the outputs? In addition to a full complement of line-level multichannel outputs – including up to two active subwoofers – are eleven sets of binding post/banana plug speaker terminals, which – according to mode – are distributed among a total of seven conventional Class AB amplifiers, each rated at 180W (6 ohms, one channel driven). It's just as well that the power supply's main transformer (a conventional laminated type, cooled by adjacent quiet-running fans) is a massive one that accounts for most of the unit's weight!

Eleven speaker terminals, but only seven amps? This is because although five of them are dedicated to conventional 5.1 use, the remaining ones can be configured for surround-back (7.1, although 6.1 is also supported), front-channel bi-amping, front-height (Dolby Pro-Logic IIz decoding features here) or Zone 2/3 (but not both). None of these can be active simultaneously using internal amplification. However, Onkyo has provided line-level outputs for Zone 2 and 3 – thereby freeing up the amps for other duties. Full 9.1 is allowable too, provided that two channels of external amplification (that old stereo amp, maybe?) are used.

Configuring (and for that matter using) the TX-NR818 doesn't raise any real concerns. The 32-bit audio DSP engine is, amongst much else, used for Audyssey's MultEQ XT32. More powerful than some of the expensive room-correction systems used in professional environments, this system equalises and level-balances the audio channels to reflect your unique listening environment. It takes advantage of a supplied microphone, which is placed in various listening positions (up to eight).

Trains of pulses are fired from your speakers, and the mike-aided DSP uses these to examine direct sound, early reflections and later reverberation. It then calculates and applies the necessary correction. The system was found to work well with my Rogers GS6/GS5/C33/ASB60 speaker system, although I found that some tweaks to levels (notably rear

channels) were necessary. Full manual control over levels, delays and equalisation is also provided.

Like the Sony BDP-790 Blu-ray player reviewed last month, the TX-NR818 is capable of upscaling video to a mind-blowing 4k resolution. This is perhaps more of a statement of technology, as affordable 4k displays are still some way off. Fear not, because 'regular' Full-HD (1920x1080p) is also supported. The circuitry responsible for this feat can rightly be described as state-of-the-art. It's based around a dual-core HQV Vida VHD1900 processor, and will upscale standard-definition video from connected component and composite sources (note that S-video connectivity isn't offered here). To achieve this, the TX-NR818 incorporates video analogue-to-digital conversion. As a result, you need only run one HDMI cable to your display.

Its aural counterpart – the 'Pure Audio' mode – disengages, as is usual, the video/display circuitry while bypassing the analogue-to-digital, DSP and digital-to-analogue conversion. We proved this in the lab by noting that the frequency response is greatly extended when the feature is engaged; this is because the incoming signal is no longer restricted by the sampling-rate limitations of the analogue-to-digital converter; this works at 24-bit/96kHz, although the all-important digital-to-analogue converters work at the full 24-bit/192kHz. Engaging it for high-quality analogue sources in particular is a worthwhile option; the overall effect is best described as removing a fine curtain between the listening position and the speakers. Naturally, though, you no longer get the advantages of DSP – Pro-Logic II decoding or Audyssey, for example.



Two cooling fans cool the vertical heatsinks. Attached to them are seven amplifier boards in a row across the centre. The green board carries digital processing chips.

Or, for that matter, 'displays'; as with previous Onkyo AVRs, you can switch between a main display (e.g., a projector) and a second 'sub' display (such as a flat-panel TV). The digital video circuitry also facilitates various picture modes – including ISF-labelled 'day' and 'night' settings that should be calibrated by a suitably-trained professional. These picture modes are all configurable in terms of contrast/colour/edge-enhancement/noise reduction and so on; there's also a direct (bypass) setting. This was found to be transparent in operation, even from converted analogue sources. A good sign...

The 40-preset FM/AM tuner may be based around an inexpensive bought-in 'module', but it punches beyond its weight with a finely-balanced sound that's certainly up to the standards of a good budget model. Although measurements suggest a better-than-average sensitivity, the TX-NR818 only really shows its potential – notably in imaging terms – from high-quality FM sources like Radio 3 if it's fed from a decent aerial. Unless you're reasonably near the transmitter, this means the supplied piece of wire is out!

Still on analogue matters, the



Digital inputs: USB, ethernet, and a row of HDMIs at top. There are also S/PDIF inputs – optical and electrical – at left. Seven amplifiers drive a 7.1 loudspeaker layout.

TX-NR818 sidesteps modern trends by including a MM phono stage. High-tech vinyl lovers rejoice! I drove it with a Rega Planar 3/RB300/Bias combination, which represents the upper standard of turntable that one could reasonably expect to partner with such equipment. With a cherished copy of Joni

a bit of code, they'll cost practically nothing to add. It should be borne in mind by Onkyo (and for that matter, other AVR manufacturers) that doing so won't just be of interest to elderly vinyl junkies. Some CDs, mastered from the original tapes, retain the matrix encoding – and will decode. But current modes (like Dolby Pro-

new music, whether by searching for songs/artists or listening to the playlists of others. It can (but doesn't always!) sound very good, thanks to the use of Ogg Vorbis streaming at rates of up to 320kbps. A Spotify stream of The XX's latest album, for example, retains much of the CD's immediacy.

Onkyo AVRs

have always scored highly on multichannel sound quality and functionality (the TX-NR818 will cope with all key formats – including Blu-ray's hi-res standards, regular DTS/Dolby Digital and matrix systems like the latest DTS Neo:X, ProLogic IIz and THX listening modes). This model doesn't buck the trend. With enjoyable comic-book action romp Avengers: Assemble, you're in for a high-octane sonic treat.

There's plenty of carefully-delineated surround at work here, all of which is accurately handled by the TX-NR818, and even at its most bombastic the soundtrack showed no signs of stretching the receiver's amp muscle.

Even at high volume levels, I could detect no traces of tell-tale



"if it encourages the owner to rediscover the joys of an almost-forgotten LP collection, then isn't that a good thing?"

Mitchell's criminally-ignored 1975 classic *Hissing of Summer Lawns*, I found that a prominently 'warm' presentation tended to dominate the proceedings – to the extent of clouding detail – even in 'pure audio' mode.

Connecting the turntable to the receiver's front-panel 'aux' input via a relatively-inexpensive Pro-Ject 'Phono Box' preamplifier yielded a noticeable improvement. This, perhaps, is hardly surprising. The TX-NR818 does a lot for the money, and this is reflected in the amount of complex electronics that's packed into its casework. You cannot expect a high-quality phono stage here! For non-critical listening, though, the onboard preamp will do a convenient job – and if it encourages the owner to unpack a turntable that's been in the loft for decades and rediscover the joys of an almost-forgotten LP collection, then isn't that a good thing?

What a pity that the TX-NR818's numerous DSP modes don't include emulations of 'matrix' quadraphonic formats like SQ and QS. As they would consist of nothing more than

Logic II) only go part of the way – they're a poor substitute for the 'real thing'.

And so to digital and multi-channel. The DLNA functions and USB playback delivered excellent results from WAV, FLAC, MP4 and MP3 content; a FLAC test rip of The XX's 'Islands', for example, yielded a fully-bodied listening experience with plenty of atmosphere and a rigid yet articulate low end. 320kbps AAC streams of some recent Proms concerts, captured with get_oplayer, were stunning. In terms of sheer involvement, they are capable of surpassing even Radio 3's FM coverage. The TX-NR818 has a competent Internet radio feature ('vTuner'), although its sound quality is ultimately-dictated by the stream being received.

Spotify users will be impressed with the receiver's provisions, although the TX-NR818 (as with other compatible streaming devices, such as the newer Squeezeboxes) will only deal with the 'paid for' incarnation of this service. It's nevertheless a great way to discover

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Rega Planar 3 Green boxed	249	Linn LK140, excellent	229	NAIM CDX2, excellent boxed remote	1399	Quod ESL375, good working order boxed	499
Rega Fono MM boxed as new	99	Linn LK140, excellent	229	NAIM CDX2, excellent boxed remote	1499	Rogers JR149 and wall brackets, excellent	649
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Roksan TMS1 & DSU, superb, boxed	1750	Linn LK140, excellent	229	North star Design Model 3 DAC, excellent boxed	199	Spendor BCL, scruffy, but full working order	299
Roksan Radius S.2 ex demo	899	Linn LK140, excellent	229	Primare CD21, near mint boxed	549	TDL RTL2, excellent	99
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Thorens TD124 mk2, excellent	799	Linn LK140, excellent	229	Unison Research Unico CD ex demo	899	Wilson Benesh Curve, excellent boxed	2999
Townsend Rock 2, Rego tonearm vgc boxed	499	Linn LK140, excellent	229	Yamaha CD5050 vintage classic boxed	299	Wilson Watt/Puppy 3/2, vgc, crated due in...	2249
Townshend Rock 2, Mission 774LC, excellent	349	Linn LK140, excellent	229				
Wilson Benesh Act 1 Tonearm, nr mint superb	799	Linn LK140, excellent	229				
Radio/Recorders							
Audio Note T-Zero Tuner, excellent boxed	349	Pass Labs X2 Preamp, excellent	899	Chord DSP8000r excellent boxed £7.5k new, BARGAIN	2499	ARCAM Solo Neo System, excellent boxed	799
Audiolab 8000T, vgc	199	Primare I21 Integrated, mint boxed	599	Naïm Flatcap original, excellent	199	Audio Analogue Crescendo Amp & CD, ex demo	799
Meridian 504, excellent	299	Puresound 2A3, excellent boxed	899	Naïm Micap - Dive, excellent	349	Krell Showcase Cinema 7.1 system (HDMI), mint boxed	4499
Meridian 204, good condition,	199	Quad 33/44/303/405 all vgc	Call	Naïm Micap - Chrome, excellent	299	NAIM NAT XS & CDSXS	2749
Quad FM3, excellent	299	Radford STA25mk3, vgc far year	1749	Naim Flatcap 2 psu, excellent	299	NAIM UnitiQute & Kudos C2s, ex demo	2249
Quad FM4, excellent late boxed unit	249	Sonus Fober Musica Integrated, excellent	1199	Onkyo RXNR609, last one sealed box	299	Roksan K2 Amp/CD combo ex demo	1199
Quad FM66, excellent boxed	299	TACT Audio RCS 2.0 Room Correcting preamplifier	799	Stax Lambda Pro and Valve engineer	899	Shanling MC30, excellent	499
		Unison Research Aria S2, valve integrated	699	Townshend Seismic rock, 4 tier mint	999	TEAC DISTINCTION SERIES - Special deals - ON DEMO	Call
		World Audio Design Kit 34, excellent	399	Van den Hul First Ultimate 0.8m	99	TEAC CRH500 All in one network system ex demo	Call

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World Radio History

'grittiness' or unclear dialogue. For this, Onkyo should be congratulated. Using my Cambridge Azur 751BD universal player, DSD playback was immediate – no untoward configuration issues – and well up to the mark aurally. A playing of Elton John's Goodbye Yellow Brick Road (yes, I'm a sucker for decent '70s music!) was characterised by a vibrancy and boldness that transcends the album's age, although the presentation seemed a touch bright. The 'larger

than life' surround soundstaging was also done justice, confirming our findings with movies.

CONCLUSION

Not only is TX-NR818 a movie barnstormer – and I mean that in a good way – but it manages to deliver a surprisingly-believable performance from music. It even stands up fairly well against a good 'budget' audiophile amp (specifically, a Naim NAIT 3), although that British classic

has the edge in pace and absolute subtlety. Considering how complex this beast is, though, its sonic prowess represents quite an achievement. Features are worthwhile; in particular the media player, albeit not particularly slick, sounds good and will handle all key formats. Spotify users will warm to the TX-NR818 but Apple devotees won't necessarily; 'made for iPod/iPhone' it may be, but AirPlay wireless-streaming isn't supported.

MEASURED PERFORMANCE

The TX-NR818 produced 144 Watts into 8 Ohms and no less than 240 Watts into 4 Ohms, one channel driven. Although in theory less will be produced when all channels are driven, due to power supply sag, with music, short term peak delivery draws from the PSU capacitors so these are realistic figures. So the TX-NR818 is powerful and will go very loud even with insensitive loudspeakers.

The receiver gets quite hot and likely runs with a high output current (Class A/B) because distortion was low and the distortion pattern stable as level increased, as usual with Onkyos. A stable distortion characteristic with few high order crossover components is a good sign, suggesting clean treble and a lack of harshness and muddle.

The input Analogue-to-Digital converters were decent, with 24bit linearity and 48kHz sample rate, giving analogue bandwidth of 24kHz, but they add 22dB of noise as usual and overload at a low 2v, so the PC etc inputs cannot accept high level signals before overloading unless the ADCs are bypassed by pressing the Direct function.

The S/PDIF inputs, both electrical and optical, accepted 96kHz sample rate digital maximum, falling mute with a 192kHz input. This was surprising, because the on-board DACs must process 24/192 via HDMI to cope with Blu-ray. Linearity was good with a 24bit signal, distortion measuring 0.1%, at -60dB, but not so good with 16bit, distortion at -60dB measuring 0.4% when 0.2% is possible. Frequency response measured flat to 48kHz with 96kHz sample rate PCM, a good result.

The VHF/FM tuner measured flat from 40Hz to 8kHz within 1dB limits, higher frequencies falling away smoothly due to the pilot tone filter at 19kHz. So the tuner will sound evenly balanced, if without heavy hiss or high treble sparkle. Distortion was low and hiss low too, with full quieting occurring above 0.5mV from the aerial. Progressive stereo channel blending down to 6µV kept hiss low and pressing a Mono button gave 2µV mono sensitivity. These are all very high sensitivity values.

The MM phono stage had a normal sensitivity value of 4mV, overload of 60mV and low noise; these are all satisfactory figures. Equalisation was within tight 0.5dB limits across the audio band with full gain below 20Hz, meaning no warp filter.

HDMI measured flat to 40kHz within 1dB and was -3dB down at 96kHz with a 192kHz sample rate digital input. Distortion at -60dB with a 24bit resolution signal measured 0.08%, a suitably low value.

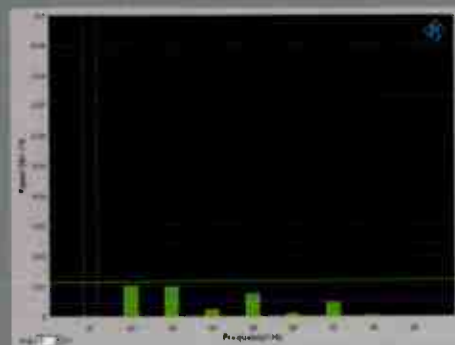
The TX-NR818 measures well all round, as usual with Onkyo receivers. It is vastly capable and has no weak spots at all. NK

Distortion	0.01%
Sensitivity	200mV
Damping factor	31
Phono	
Frequency response	10Hz-20kHz
Separation	82dB
Noise	-76dB
Distortion	0.01%
Sensitivity	4mV
Overload	60mV
VHF tuner	
Frequency response	40Hz-8kHz
Stereo separation	44dB
Distortion (50% mod.)	0.1%
Hiss (CCIR)	-69dB
Signal for minimum hiss	0.5mV
Sensitivity	
mono	2µV
stereo	38µV
S/PDIF / USB/ Ethernet	
Frequency response	4Hz-48kHz
Distortion (-60dB, 16/24 bit)	0.4 / 0.1%
Noise	-112dB
Dynamic range (24bit)	113dB

FREQUENCY RESPONSE S/PDIF



AMP DISTORTION, 10kHz, 1W



Power	144watts
Frequency response	4Hz-100kHz
Noise	-100dB

VERDICT ●●●●●

Check out the TX-NR818 – a successful marriage of broad functionality and first class performance, at a great price.

ONKYO TX-NR818 £1000

Onkyo
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FOR

- high-impact yet refined audio character
- plentiful feature count
- music streaming

AGAINST

- remote control a bit disappointing
- lacklustre phono stage
- no provision for recorders (analogue or digital)

vinyl section

contents

DECEMBER 2012

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INSPIRE VIVID LP12 TURNTABLE + ORTOFON TA-110 ARM 89

Rafael Todes spins an interesting combo from Inspire, Linn LP12 with 13in Orofon TA-110 arm.

CLASSIC CUTS 93

Paul Rigby on Merle Haggard, 'The Troubador'.

AVID PELLAR 95

Paul Rigby auditions the latest budget phono stage from Avid.

SONIK SIRCLE SME 3009 UPGRADE 99

Tony Bolton tries an upgraded classic arm.

news

ROCK ON

UK-based Back On Black (www.backonblack.com) has released two varied rock LPs in gatefold sleeves. Irsahn's new, black metal, album, 'Eremita' is infused with a gamut of cross-stylings from bossa nova to krautrock and from industrial to jazz. A deconstruction of the artist, in fact.

Next is Counting Crows' 'August And Everything After Live At Town Hall', a double album that revisits the original 1993 debut, in full and in order. Excellent album and a great show.

There's also a couple of punk gems from Rave Up (www.raveuprecords.com).

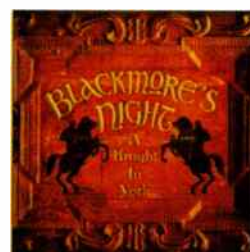
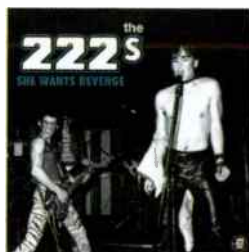
The Names' Young Romantics' documents the short-lived Arizona, USA outfit. Thus LP includes a mixture of studio and live tracks while The 222s' 'She Wants Revenge' tells the story of the Canadian punks from 1977, a hardcore outfit who were hated by the Canadian public and manipulated by mobsters. This LP features demos and live tracks.

Also look out for Let Them Eat Vinyl (www.letthemeatvinyl.com) and Pearl Jam's 'The Broadcasts 1992', also within a gatefold, featuring the 1992 Cabaret Metro show in Chicago plus three TV appearances over five tracks. Richie Blackmore and Blackmore's Night's 'A Knight In York' (UDR; www.blackmoresnight.com) is a new, two disc affair that further explores Blackmore's love of the Renaissance period complete with partner, Candice Night and his acoustic guitar. Finally, spouting a combination of classic rock and post-grunge, Kill Devil Hill's ([SPV: www.spv.de](http://www.spv.de)) new, self-titled, debut features Black Sabbath's Vinny Appice and Pantera's Rex Brown. Very Alice In Chains.

THE OTHER SIDE

Taking a more avant view on music is the Recollection GRM via Editions Mego (editionsmego.com). Guy Reibel's 'Granulations-Sillages' / 'Franges du Signe' (1976) is classic avant-garde electronica from the Groupe de Recherches Musicales school of Music Concrete along with the likes of Iannis Xenakis and Pierre Schaeffer. Schaeffer's 'Le Triage Fertile' is also on offer here, via GRM, from 1974. Challenging with sublime highlights.

Also from Editions Mego is the new release, 'Occlusions', from Keith Fullerton Whitman featuring free-form electronica, recorded in France and Holland. Aggressive, proactive, in your face, mechanical and wholly alien...unless you are a valve, perhaps.





ROCK ON MOV

A compilation of the early, Peter Green-lead, Fleetwood Mac featuring songs from the albums 'Fleetwood Mac' and 'Mr. Wonderful', 'Pious Bird of Good Omen' (1969) features the hit single, 'Albatross'. An ideal introduction to the early Mac origins.

A new age in power pop, with an alt.indie edge, The Posies' 'Dear 23' (1990) took a break from the grungy stylings to explore contemplative rock complete with top quality harmonies and songs.

Mixing heavy metal and hip hop, Biohazard's 'New World Disorder' (1999) is a refinement on their previous releases. Features guest appearances from Fear Factory's Christian Olde Wolbers and Sepultura's Igor Cavalera.

Rage Against The Machine's 'Live At The Grand Olympic Auditorium' continues the punk, hip hop and thrashy-like vibes, spouting left wing polemic and an element of posturing. The mixing is not the best and the transfer fails to harness the passion of the gig but they do redeem themselves when singing their early originals.

Also look out for: ELO's 'A New World Record' (1976), with embossed sleeve; Deep Purple's 'Slaves And Masters' (1990), a weak offering despite featuring Ritchie Blackmore, singer Joe Lynn Turner, keyboardist/organist Jon Lord, drummer Ian Paice and bassist Roger Glover; rock/blues/gospel outfit, Tedeschi Trucks Band's 3LP live disc, 'Everybody's Talkin' that includes extended album tracks and covers, and finally Jimi Hendrix Experience's 'Live At Berkeley', a complete performance in its original sequence, plus an eight-page booklet.



WAH WAH

Spanish label, Wah Wah (www.wah-wahsupersonic.com), has released a selection of mind expanding LPs. The first, Clearlight (or keyboardist Cyrille Verdeaux and friends) was a symphonic prog outfit. 'Symphony' (1975), their debut, explored classicalism and experimentalism with help from members of Gong.

Hydrus 'Midnight In Space' takes experimental electronica from 1978 from the Italian PDU label, with passing similarities to Germany's Ohr. A restful, cosmic trip that is soaring, playful and ethereal.

Also look out for André Popp's 'Le Coeur En Fête'. Known for his tape manipulation techniques, this album mixed progressive pop, funk and easy listening. Also, combining rock and free jazz with sprinklings of odd sound effects, 'Bloody Rockers' (1960), via Joachim & Rolf Kühn, helped paved the way for the later krautrock scene.

...AND FINALLY

Ex-Eagles man, Glenn Frey returns with a new LP, the first in twenty years. 'After Hours' is an easy listening, covers album.

From Rumble is the debut from The Shirelles. Released in 1961, 'Tonight's the Night' includes the title hit plus 'Will You Love Me Tomorrow' and 'Dedicated to the One I Love'.

Another debut, 'Ptooff!' (1967), this time from the Deviants is drenched with psychedelic underground vibes. But this is the scary dark side of the genre, filled with portent and threat. Us and Them music.

The Pure Conjecture's 'Courgettes' (Memmons; www.armellodie.com) provides a smoky, low key affair fronted by a lo-fi, Ian McCulloch-like vocal and offering easy, melodic fare. Features members of British Sea Power and Brakes.





Vivid LP12 Upgrade Pack

Fit a 12in arm to a Linn LP12 turntable? Inspire do it by building a new plinth and arm board. Rafael Todes listens to the end result.

It was in May 2011 that then Editor David Price reviewed Inspire's upgrade package for the classic Linn LP12, concluding that the modification wrung "much more performance from this classic, at a low price". Inspire's Robert Isherwood has now developed the modification to do what was previously unthinkable, namely to accommodate a 12 inch arm on the LP12.

To recap on the standard Vivid upgrade; for £899 and £85 labour, you can expect a solid wood, corner braced plinth in Maple, Cherry, a Vivid 10mm acrylic and aluminium sub chassis, a 10mm arm board secured to the sub chassis with bolts going into a brass insert on the underside of the arm for a rigid torqued fit, a 3mm rigid base board

with Sorbothane and metal shock absorbers, an Acric turntable mat, and a Hercules on-board power supply.

For this new 12inch procedure, (cost £1199 plus £120 labour) in order to accommodate a 12 inch arm, the sub chassis has to be re-weighted to even out the bounce and add extra mass. The arm board is larger, and thus the plinth needs to be wider to house the wider arm board. Looking at the finished modification, the ratio of the arm board to steel plate now is greater, which caused me a visual double-take on first sighting!

Robert Isherwood has performed around 500 operations on LP12 since the original modification was announced, making Inspire one of the largest non-Linn Linn retailers. The surgery can take place walk-in by 3

hour appointment, or by collection.

The supplied review sample was fitted with an Ortofon TA-210 (£1300) 12 inch static-balance tonearm which is actually nearer 13



The arm sits in the very corner of the plinth and the weight overhangs the rear.

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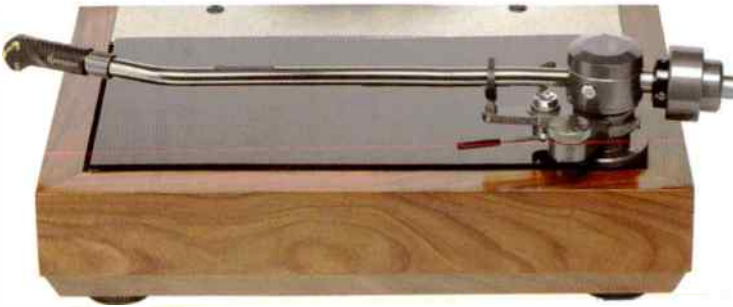
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Ortofon's TA-210 is nearly 13 inches long. This is one long and impressive looking arm. Long arms reduce tracking distortion.

inches than 12 and was favourably reviewed in Hi-Fi World, together with a £3500 Xpression Cartridge. Perhaps this is a disproportionately high amount for a cartridge in this set up, however I enjoyed the silky sweetness that it brought to the

basses were twice as many in number to what they should be, combined with a sense that they were playing in a cathedral, while the rest of the orchestra was in a concert hall. The Inspire modification goes a fair distance to level the acoustic

"orchestra colours seem more intense and concentrated, as if you were listening in Technicolor!"

package.

Listening to the Philips' recording of the Bach Brandenburg Concertos, the English Chamber Orchestra conducted by Raymond Leppard, yielded a sonic treat. The LP12 sound, a gentle-attack bass combined with a glowing rich midrange provided more of what I would hope for, rather than expect from a traditional LP12. Having owned a Valhalla Linn in the 1990s, I eventually gave up on it because of the flabbiness and disjointedness of the bass. It was like the cellos and

of the different orchestral sections and seems largely to remove this problem.

The midrange seems to have gained a smoothness and liquidity from what I remember of the old LP12, the 12 Inch Ortofon coming into its own.

Having been given a collection of records, I am delighted to have a few of the vintage

Inspire's plinth is a lovely piece of woodwork, lustroously finished.



Decca recordings made at Snape Maltings, before it burnt down, Benjamin Britten conducting his own piano concerto for one. The deck and combination has an attractive quality of making the midrange of the orchestra colours seem more intense and concentrated, as if you were listening in Technicolor! The soundstage is more limited than I normally experience with my Inspire Monarch and SMEV arm, and the grip in the bass, whilst a substantial improvement over the stock LP12, hasn't got the same speed or incisiveness. But it should be said that the Monarch retails at around £3970, which is more than the commercial value of the Sondek. (An old LP12 can be picked up for around £400-£500 and the package on top of this brings the modified deck to around the £1500 mark).

This is an excellent value modification on top of the old Vivid upgrade package for those followers of the house of Linn who wish to venture into the 12inch fold. It has been well thought-out and executed, and for a relatively small outlay in terms of Linn's own upgrades, it takes the Sondek into pastures new and indeed extended!

VERDICT

An interesting improvement upon the standard LP12 that brings valuable extra qualities.

**INSPIRE LINN LP12+
ORTOFON TA-210 12IN ARM
PLINTH & LABOUR £1319**
+44 (0)1246 472222
www.inspirehifi.co.uk

FOR

- good looking
- low distortion arm
- smooth sound

AGAINST

- needs extra space
- no lid

MEASURED PERFORMANCE

The first bending mode of the TA-210 was at 190Hz, a low value expected from a long arm tube, due to extra mass and/or compliance. However, Ortofon damp the tube with a rubber insert, so the main mode is well suppressed and the usual related third order mode is absent. There are few discrete modes below 1kHz either, giving the TA-210 an unusually clean vibrational spectrum.

The sturdy headshell resists high frequency ringing well, somewhat better than most and this results in a clean spectrum above 1kHz. Treble should sound smooth and clean as a result. So although the TA-210 is a long and conventional looking arm under measurement it performs very well.

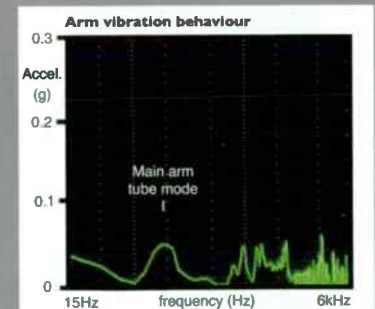
The Linn LP12 turntable with its electronic speed control held basic speed well, suffering little drift. As a result it produced just 0.1% unweighted Wow where 0.3% or so is common for belt drive. Flutter measured a low 0.06%. Our spectrum analysis of the FM demodulated test tone from a Kenwood FL-180A W&F meter shows a low basic rate rotational component at 0.55Hz, and low wow and flutter components of higher frequency. So the Linn held speed well and will sound steady and pitch stable in use. It ran an acceptable +0.5% fast.

This turntable / arm combination may look trad. but hidden from view are mods like electronic speed control and internal arm tube damping that give it

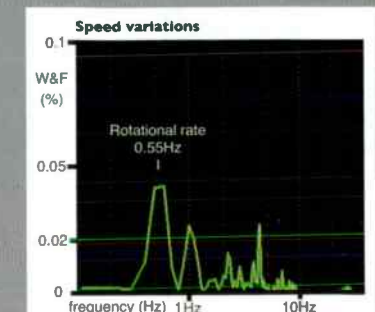
a very respectable performance. It will certainly provide fine sound quality. NK

Wow	0.1%
Flutter	0.06%
total W&F unweighted	0.1%
total W&F DIN weighted	0.08%
Speed accuracy	+0.5%

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living Control Room Box4 BNIB	1712	799
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Sugden CD21 series II CD player S/H	1600	699
Unison Unico CDP Black S/H	1100	479
Wadia 170i Transport BNIB iPod dock	499	349
Analogue		
Heed Audio Quasar MM/MC 2 box Phono stage x-demo	740	499
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Audio Research PH6 phono stage x-demo	3298	2399
Mark Levinson No320s Phono Module x-demo	995	499
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SRMAthens TT with Arezzo PSU RB351 M2Red x-demo	1500	799
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Chord Electronics CPM2650 Integrated Amplifier S/H	4899	2799
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DPA Power Plus BNIB	950	649
Electrocompaniet EC13 6 months old S/H	1925	999
Electrocompaniet PI-1 x-demo	1425	999
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Perreaux Prisma 750 mono Amplifiers x-demo	9500	3199
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Kudos C1 Maple x-demo	1999	1149
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Martin Logan Summit X Maple S/H	14998	8500
PenAudio Charm Sub modules x-demo	2175	999
Quad 989 Black Electrostatics Just Serviced S/H	N/A	1599
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Sonus faber Liuto Towers x-demo	3399	2439
Sonus Faber Cremona Elipsa Maple x-demo	12980	7999
Sonus Faber Guaneri Momento Graphite x-demo	9098	7499
Zingali Italy Florence Floorstanders Cherry 93db x-demo	3999	1999
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Audioquest Niagara 1m RCA interconnect BNIB	1550	799
Audioquest Colorado 1m RCA Interconnect BNIB	770	399
CD 4 pillar 60cm stands HEAVY! S/H	279	149
Electrocompaniet ECS1 M6 feet x4 BNIB	189	49
Jadis KT90 Valves x 4 BNIB	600	300
JPS Ultra Dual bi wire 2x8 Spades to banana S/H	549	279
MIT Terminator II Biwire 2x10ft S/H	599	249
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Absolutely Wizard!



The Avid range of phono amps has gained a new, budget, model. Paul Rigby reviews the Pellar.

The first design in Avid's phono preamp range was the top, twin-box, Pulsare (now Pulsare II). From that, the cheaper Pellere was developed, then the Pulsus and now, cheaper again, is this new model, the Pellar –Cornish for wizard.

The idea behind this approach is to reduce the cost of the previous product as much as possible without reducing the quality. This approach gives the next model down a high benchmark to live up to. That even extends to basic phono amp features like loading. "On the Pellar, 47k is the default loading," said Avid boss, Conrad Mas, "which is for a moving magnet cartridge. If you want to change that, you add externally fitted 'loading plugs' to the required value, to get the loading you want for a moving coil".

Looking like a couple of RCA terminations, the plugs are packed with a resistor which matches your cartridge and plugs into the back of

the Pellar's chassis. Hence, when you buy your Pellar, talk to Avid and tell them what cartridge you have in your turntable and, for an extra tenner, they will give you a set of loading plugs that will match your cartridge.

"It also means that you don't have to go inside the box and mess around with jumper sockets and various other things like that. I don't like people going inside boxes because that is where trouble begins. Whether that they damage the box or touch something they should not do and something goes bang. It's not a good idea," said Mas.

Although the Pellar uses basic DIP switch gain adjustment, located underneath the chassis, because of the introduction of loading plugs, the phono amp doesn't depend on the usual complex DIP switch array which can degrade the sound.

Taking the Pulsus as a template, Avid "have scrunched up the board so that we have made all the components a lot closer together," said Mas.

The casework is slightly longer than the Pulsus because the power supply is inside. Avid decided to go internal than rely on a cheaper wall-wart. "Those external power blocks that you plug into a wall? They are awful, horrible, nasty things. If you get three of them and measure all three then they will all measure differently. They are notoriously unreliable".

Anyone concerned about a rise in distortive noise should, according to Mas, relax. "If you listen to the phono stage you will find that because of the design of the circuit, we have pretty much eliminated the noise issue".

Spanning 305x250x110mm and weighing just 2.2kg, the Pellar is a neat system, but at £600, is this budget phono amp truly 'budget'? Mas is adamant, "Avid is my company and I will always make a product that I would buy myself and listen to myself. And frankly, below £600 I would be pushing to make anything I would want sit down and listen to."



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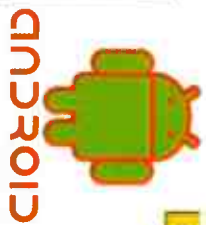
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10:08



Sonik Sircle SME

Take a classic SME 3009 arm, fit a high-tech carbon fibre arm tube and you get the Sonik Sircle SME 3009 Tony Bolton listened to.

As our understanding of various technologies change over the years, so items that were once deemed to be state of the art become outdated in some aspect of their performance. Sometimes the unit will be consigned to the waste-bins of history, but occasionally someone will take a fresh look at a design and try to bring it into the modern age.

Ray Casey is one of these people. Based in Arbroath in Scotland, he is a precision engineer by trade, calibrating mechanical and laser gyroscopes for the oil industry. He is also a hi-fi enthusiast who has turned

his hand to making turntables and equipment racks marketed under the brand name Sonic Sircle. His need for a second arm for his turntable led him to modify an SME 3009 that he had owned since 1977.

The original 3009 was introduced in 1959 and has been through various incarnations, both with and without detachable headshells, and with various compliance options as cartridge design evolved. It eventually went out of production at the end of 2003 when superseded by the new M2 Series arms.

In its day, the 3009 was regarded as one of the best arms in the world, but it has been overtaken

by other products, so although still capable of producing fine results, the performance is somewhat dated by modern standards.

Ray's updating of the arm, takes the form of replacing the wiring with a silver plated, copper example, sheathed in PTFE. The stainless steel arm tube is also replaced with a spun carbon fibre tube that is injected with resin, and pressurised at 15 psi, until the resin is set. There are also three different pieces of wood; oak, cherry and balsa, placed in the arm tube at strategic points so that mass is distributed evenly. The effective mass is 10.01g.

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moving the large weight at the back of the arm. The original SME outrigger counterweight is dispensed with, and the outrigger reversed so that it offsets any imbalance in the knife edge bearings. The signal is output through two gold plated phono sockets mounted at the side of the base. This can exit to either the left or right, depending on the requirements of the turntable that it is destined for. The headshell is made of acrylic, shaped to include a finger lift. Two Allen headed bolts need to be unscrewed to allow the cartridge to be fitted.

All of this costs £350 if the customer supplies their own arm for modification. Ray will procure an arm for modifying if required, but this will cost more. If the customer is not happy with the results of these changes, then the arm can be returned to original form.

I fitted the arm to my Sondek, reset the deck's suspension, calibrated and aligned the arm, using the standard SME sliding arm base, and started off listening to Van Cliburn's 1961 recording of Beethoven's 'Emperor' Concerto.

The opening orchestral chords, interspersed with piano cadenzas, rang out through the system with both weight and authority. As the music played I found myself being drawn into a very convincing rendition of the piece. This is majestic music, yet it has very delicate

**MUSIC USED:**

Beethoven. 'Concerto No. 5 in E-Flat. Op.73 "Emperor".' Fritz Reiner conducting Chicago Symphony Orchestra. Piano: Van Cliburn. RCA Victor Records. LM-2562. 1961

Annette Hanshaw 'Lovable and Sweet' Vol 1. World Records. SH 246. 1977.

The Animals. 'The Hits of the Animals'. Columbia Records. SGHX 10048. 1966.

Human Blue. 'Electric Roundabout'. Spiral Trax Records. SPIT LP 010. 2002.

details within it, and these can sometimes seem to be pushed to the background by the sheer volume of musical information that Beethoven creates. With the Sonic Sircle in charge, however, it did not feel overly heavy and stodgy, but flowed naturally, from the seeming simplicity of a small group of instruments, through to the grandiloquence of the full orchestra. I felt that an even balance was struck between intimacy and display.

After a fairly full fat rendition of the 'Emperor', I was in the mood for something a little lighter for my next musical course. So I put on an LP of one of my favourite '20s vocalists, Annette Hanshaw. Her version of the classic torch song 'Moanin' Low' was recorded soon after its release in 1929, and includes both the Dorsey brothers among her backing musicians. I enjoyed the performance but did feel that the sound had acquired a bit more honesty regarding the age of the recording. In this case, the slightly rose-coloured-glasses approach of the stock 3009 could have been preferable.

I followed this up with the raw, brooding energy of The Animals 'We Got to Get Out Of This Place'. Compared to the standard arm, the Sonik Sircle version displayed a sharper edged, more aggressive guitar sound, and a slightly tighter grip on the beat that seemed to give the music more urgency.

This was confirmed with the pounding trance beats of Human Blue. The low notes were more substantial than before, and at the other extreme, there seemed to be a corresponding extension to, and increase in shape of, the higher frequencies.

I am impressed with this take on updating the SME 3009. Very often, certain aspects of a component's character can get either lost or immersed by the modification process. In this case I think

the basic character of the 3009 is still there, but with the more substantial nature to the sound that epitomises more modern SME arms. It has proven to be an interesting combination of the liveness of the original product, but with the solid deep punch to the bass of more contemporary arm designs. It was as though the 3009 had beefed up a bit at the local gym.

The imaging was pretty good, not the most holographic that I have heard but, spacious and evenly lit. The scale was big enough that the Chicago Symphony Orchestra did not feel hemmed in by my listening room, but I was also able to enjoy the sensation of listening to an eight piece jazz band and vocalist in an equally appropriate space.

The original arm portrayed sound with a gentler approach to the description, whereas this one was a little more frank, in much the way that our manner of speech and behaviour have altered within our society in the last half century. If you yearn for a gentler past then stick with the original model. If however, you wish to bring a type of manners and a certain charm from the past, and update them with a bit of modern phraseology, then the Sonik Sircle SME 3009 upgrade could be just what you are looking for.

SYSTEM USED:

Linn Sondek/ Clearaudio Concept MC.
Luxman E200 and Creek Wyndor
phonostages.
Bent Audio TAP-X passive pre-amp.
2 x Quad 303 power amps.
Kelly KT3 loudspeakers.

VERDICT ●●●●●

Successful reworking of a hi-fi classic that results in a more modern sounding arm.

**SONIK SIRCLE SME 3009
UPGRADE** £350.00
Sonik Sircle
www.soniksircle.co.uk

FOR

- good bass and treble extension
- strong imaging
- tight timing

AGAINST

- loses a little of the original's lyricism

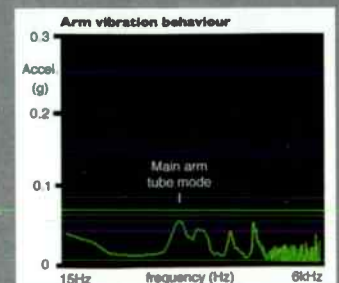
MEASURED PERFORMANCE

The SME 3009 modded by Sonik Sircle arm has a first bending mode placed at 350Hz, a very high frequency. Most tubular arms resonate around 230Hz, so the new tube is very stiff. Stiff tubes usually have a narrow, high peak (high Q resonance) but the Sonik Sircle is well damped too, the peak being low at around 0.05g. There are related third and fifth order bending modes but they are very small.

Like all vestigial headshells clamped beneath the arm tube this one resonates little above 1kHz, meaning it is very 'quiet' and will give clean, smooth treble.

The Sonik Sircle arm looks

impressive under vibrational analysis with our Bruel & Kjaer accelerometer. It is resonance free right across the audio band so should sound excellent. NK

ARM VIBRATION



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22FT PAIR ultra high performance Kimber Monocle-X loudspeaker cable upgraded with VBT Nextgen 0160Ag (platinum plated silver) slant bananas. Superb sound. Vast soundstage. Very heavy. Mint. (£2300+) £950. Tel: 0151 608 4481

B&O BEOMASTER 2400/2 amplifier/tuner. Perfect working condition. £25. B&O Beocord 8004 HXPro cassette deck, recently serviced, £95. Goldring Lenco GL69 turntable, two cartridges, no cover, perfect, £75. 07903 443 220 (London)

AUDION SILVER Night 300B monoblock amps. Premier by Audion pre amp, MM/MC. £2500. Very good condition. Tel: 0116 2910 415 after 6pm

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FOR SALE Audio Synthesis DAX Discrete Basic d/a converter £400 Audio Synthesis Passion Attenuator £200 Phone Rick 07931 526 106

SONY CDPXB 930 QS CD player. Sony TAFB 920R QS amplifier, 80 watts per channel. Both mint condition, manuals, remotes included. £125 each or both £200. Not being used. Tel: 0161 370 8179

QUAD QC twenty four pre amp, as new condition. Sensible offers considered. Tel: 01530 272 801 or Email: williams.david66@sky.com

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IPL S3TL transmission line floorstander, vgc, £200 ono. Woodside integrated valve amp, new valves, vgc, £350 ono. Musical Fidelity headphone amp, cylindrical, vgc, new valves, £100 ono. Can demo weekends only. Tel: 01362 850 258 (Norfolk)

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SONY TC 645, 3 motors, 3 heads, lots of tapes, £250. Rotel RT 1024 supertuner with Dolby, £100. Rotel RA 1212 heavyweight amp, good p/u input, £100. Celestion UL6 (ABR) speakers, £60. Dual CS 5000 T/T, teak plinth, cartridge and cover, £50. Proceeds to AICR Cancer Research. Tel: 01502 562 622 (Lowestoft)

MUSICAL FIDELITY AI CD-Pro player. Musical Fidelity AI amplifier. Musical Fidelity T1 FM tuner. All excellent condition, boxed. Will demonstrate. All sensible offers considered. Tel: Shaun 01226 244 341 (evenings only)

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**GUIDELINES FOR
BUYING AND SELLING
SECOND-HAND
EQUIPMENT**

FOR THE BUYER

1. Not everyone is honest - Buyer Beware!
2. Don't send cash!
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not? Can it be repaired and if so is it worth it?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.
12. Don't send cash!

FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!



OYAIDE HPC-62HD HEADPHONE CABLE £160

Suitable for use with Sennheiser HD580, HD600, HD650 headphones, this replacement cable includes ultrafine PCOCC-A conductors which have few impurities and low signal disturbance. Inside the cable, twenty wires are grouped at a time and are unified in a unit. Three complete units are grouped as a conductor which, says the company, is not only geometrically-stable but stops cable deformation.

Hooking the cable to a pair of

HD650s, testing occurred using the prog track, King Crimson's 'Three Of A Perfect Pair'. In general terms, the Oyaide lowered the noise floor, providing the HD650s with a precise presentation that exceeded its previously dominant bass-heavy demeanor. The Oyaide cable brought control to the music but also freed the upper mids by allowing them to flow successfully. Where previously there were conflicting frequencies, the Oyaide gave the HD650s a gentle, sun-lit sonic horizon. This also meant that the midrange was now far more detailed.

The instrumental separation improved the soundstage to such an extent that each musician appeared to relax into the music. Complex sequences were now tackled with relish. The bass can be quite dominating on a pair of HD650s, the Oyaide allowed the lower frequencies to accommodate the midrange and treble.

Moving to Yehudi Menuhin's

'Mendelssohn and Bruch Concertos' (HiQ) and Bruch's 'Violin Concerto No.1 in G minor Op.26', saw the strings, either in the hands of Menuhin or the backing orchestra, fairly glide across the track with ease. The emotion of the solo violin became all the more poignant.

A greater degree of the orchestral backing was evident too. The brass shone in the midrange while the subtle aspects of the string accompaniment illuminated the soundstage too, enhancing both clarity and transparency. Bass lost an element of bloom, which allowed it to better integrate within the mix as a whole.

Easily fitted, well made and, more to the point, offering an immediate and stark sonic upgrade, the Oyaide HPC-62HD headphone cable should be tracked down by anyone with a pair of compatible Sennheisers. **PR**

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soundbites

EPIPHANY ACOUSTICS ATRATUS INTERCONNECT CABLES £45 PER METRE

The Epiphany Acoustics Atratus interconnects use a dual shield construction with copper braid and foil, covering heavy gauge, twisted copper conductors. Terminated with OEM plugs, the cables are available in 1 metre lengths.

Hooking the interconnects to my T+A GI0 turntable, Trichord Dino phono amp, Rega Brio-R integrated and Spondor S3-SR2 speakers and running the King Crimson track 'Three Of A Perfect Pair', the Epiphany cables didn't have the bass slam of the reference Chord Anthem 2s, which drove the music hard, giving it a high dynamic energy and excitement. What the Epiphany cables did provide with this track, that suffers from a measure of excessive compression, was a slight calming of the upper midrange frequencies so that harsh vocal crescendos and guitar solos sounded relatively listenable again. Similarly, treble was reigned back a tad to allow the

previously splashy treble extra room to manoeuvre. The compressed music didn't suddenly transform itself into one of delicacy with the addition of the Epiphany but more treble and midrange information was able to be heard. The warming of the bass notes also reduced the low frequency emphasis, allowing the mids a dominating role within the mix.

Moving to Yehudi Menuhin's 'Mendelssohn and Bruch Concertos' (HiQ) and Bruch's 'Violin Concerto No.1 in G minor Op.26', the Chords did their high energy routine which enabled this piece to scoot along at a pace. The Epiphany cables offered an alternative take on the performance, lifting the soundstage, to begin with and stretching it a little left and right to expand the performance as a whole.

The midrange was interesting. There was definitely more air and space on offer in the upper mids., while treble was given a little more elegance. This combined with a richer, complex orchestral violin section that, in turn, provided a relaxing perspective on the arrangement.

Menuhin's own provided detail a tremendous bite during his staccato attack on the strings while, during the more pastoral period of the piece, his violin displayed considered, the aspect.

The Epiphany Atratus interconnects are well made with good quality terminations that provide top quality sound. They are not perfect, those looking for punch and weight within the bass regions may be disappointed. Although the lower frequencies are by no means a disappointment, they do offer a steady bass response plus some excellent midrange detail. More to the point, at this price, they are a steal. **PR**

[Contact:
www.epiphany-acoustics.co.uk]



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NEXT MONTH

January is our Awards Issue, in preparation right now. We will bring you an insight into all the best products reviewed during 2012. So find out what impressed us most in next month's issue.

Also, we have KEF's new R500 loudspeakers seen at left, Meridian's new 818 Reference Audio Core/preamplifier, lots of Christmas goodies and much else.

OUR AWARDS FOR 2012

LOUDSPEAKERS
KEF R500

VINYL
Clear Audio Universal 9"12" arm
Michell Technodek
Heed Quasar phono stage

AMPLIFICATION
Meridian 818 Reference Audio Core/pre-amplifier

DIGITAL
Cyrus
Furutech ADL Esprit - DAC/digital pre

Christmas crossword
Christmas quiz
Beatles feature



We either have, or are about to receive these products, but can't guarantee they will appear.

PICK UP THE JANUARY 2013 ISSUE OF HI-FI WORLD ON SALE 30TH NOVEMBER, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: p40

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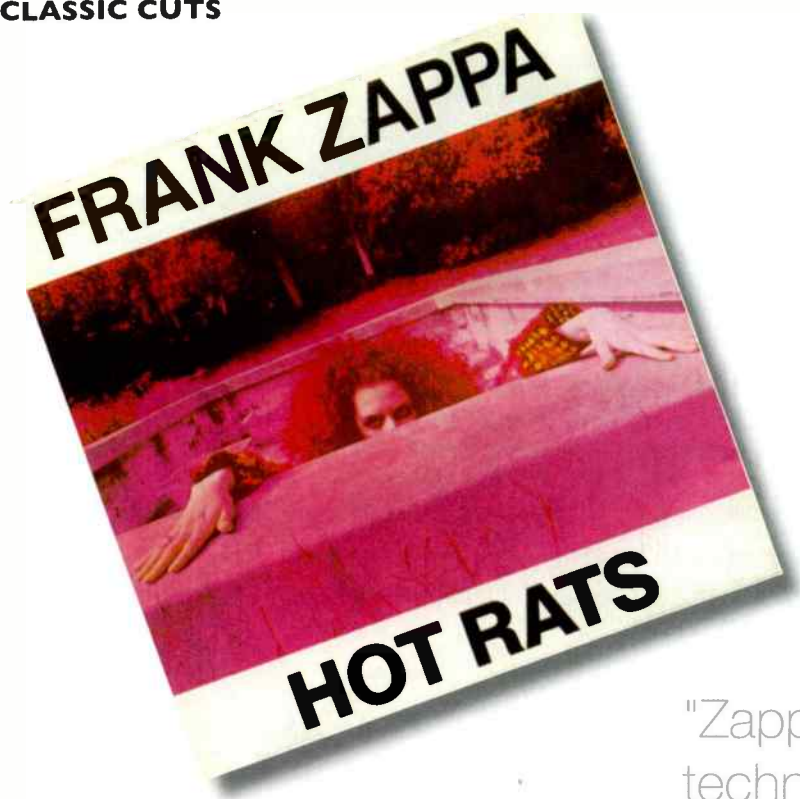
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FEBRUARY 2013 - 3RD DECEMBER

MARCH 2013 - 8TH JANUARY



FRANK ZAPPA

HOT RATS

1969

"Zappa displayed his superb guitar technique amongst gorgeous melodic constructions"

Frunk Zappa fans can rejoice because the entire Zappa catalogue is about to be reissued. We need to grab confirmation but it appears that the Zappa family has control of the catalogue and is pushing the new CDs through Universal in a similar deal to that adopted by the Jimi Hendrix family estate. There will be sixty CDs issued, in batches of twelve. The first batch includes: 'Freak Out!' (1966), 'Absolutely Free' (1967), 'Lumpy Gravy' (1968), 'We're Only In It For The Money' (1968), 'Cruising With Ruben & The Jets' (1968), 'Uncle Meat' (1969), 'Hot Rats' (1969), 'Burnt Weeny Sandwich' (1970), 'Weasels Ripped My Flesh' (1970), 'Chunga's Revenge' (1970), 'Fillmore East, June 1971' (1971) and 'Just Another Band From L.A.' (1972).

'Hot Rats' is the topic of this month's column, Zappa's first proper solo LP after leaving The Mothers Of Invention band, a beautiful jazz-rock piece in which Zappa displayed his superb guitar technique amongst gorgeous melodic constructions. '... Rats' remains an ideal entry point, for beginners, into the Zappa canon.

The creation of the album is interesting. Listening to the album, it seemed that the multi-layered, complex interplay of the multi-instrumentalist performers initially reflected a demanding performance. The reality is different, however. Speaking in Australia, in 1973, Zappa had no problems in dispelling the illusion, "Some people think that the 'Hot Rats' album was completely scored out. Well, it wasn't.

Here's how the 'Hot Rats' album was made. It started out with basic

rhythm tracks that were done by a four-piece rhythm ensemble and all the rest of the parts were over-dubbed on top of that and much of it was written right there in the studio. The rhythm tracks took approximately ten hours but to complete 'Peaches and Regalia' took 100 hours in terms of over-dubbing for that one song and there's only four people playing on the album at any one time on any of those tracks".

While the album is a cracker, the new remaster is finally able to do the digital version justice. Taken from the original master tapes, the job was undertaken by respected audiophile, Bernie Grundman. I took a listen to the new album and compared it to my older copy of the same album which uses the 1987 mix.

Taking 'Peaches En Regalia' as my main focal point I was astounded at the improvement provided by the new release which immediately introduced a deeper, darker growl to the bass with a broad flow of detail emanating from the piano. The soundstage was wide and epic now, new instruments could also be heard at the extreme margins – organ riffs, drones and even new percussion popped up for the first time. The extra space allowed the drums, which were more prominent in the mix, the space to move freely, enhancing the melodic nature of the track. Cymbal work, meanwhile, was now wholly recognisable, adding a new layer of fragility to the presentation. Guitars benefitted from a lower noise floor which meant that the

precision of this stringed sequence was spotlighted.

In short, the remastering process is a complete triumph that only adds to the wonder at the high level of musicianship (and mixing) on offer.

But that's not all because, as this release is but one of twelve reissued CDs, it seems sensible to give those CDs that didn't benefit from the original masters a brief mention too. I quickly looked at 'Freak Out!' (1966) which has been reissued via the 1987 remaster. I compared that to my reference which is based upon a remaster issued in 1993. Frankly, even the 'new' 1987 remaster is superior to my 1993 reference. Despite Grundman having limited sonic room to manoeuvre, the 'new' reissue is tidier and more focused whereas the 1993 version is rather slapdash and messy. Somehow, the 1987 version is cohesive while the bass is slightly elevated, giving it a touch of extra richness.

In the past, when the Zappa catalogue was controlled by third party labels, the mastering quality of the albums was always a bone of contention. Now the Zappa family has managed to get their hands on the catalogue, they are doing a superb job. This suite of CD reissues, at least if the first twelve releases are anything to go by, are the best digital variants currently on sale. Zappa fans need to have any version derived from the original master tapes. These are essential. The rest should be seriously considered. Personally, I would grab the lot. **PR**

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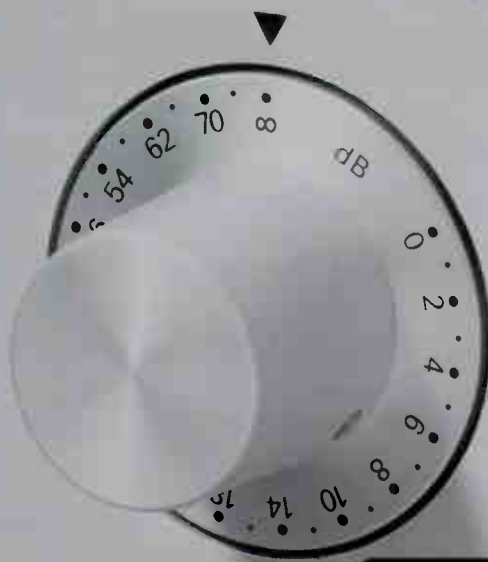


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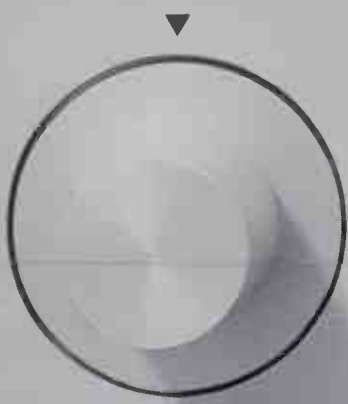
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