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welcome

EDITOR

Noel Keywood
e-mail: editorial@hi-fiworld.co.uk

DESIGN EDITOR

Faiza Chunara
tel: +44 (0) 20 8206 6018
e-mail: adproduction@hi-fiworld.co.uk

PRODUCTION EDITOR

David Noble
tel: +44 (0) 20 8206 6019
e-mail: classifieds@hi-fiworld.co.uk

SALES MANAGER

Louise Palfrey
mob: +44 (0) 7917 047 548
e-mail: louise@hi-fiworld.co.uk

ADVERTISING EXECUTIVE

Joanna Holmes
mob: +44 (0) 7958 602347
e-mail: joanna@hi-fiworld.co.uk

PUBLISHER

Noel Keywood
e-mail: publisher@hi-fiworld.co.uk

FREE READERS CLASSIFIEDS

tel: +44 (0) 20 8 206 6019
e-mail: classifieds@hi-fiworld.co.uk

SUBSCRIPTIONS

tel: +44 (0) 1442 820 580
fax: +44 (0) 1442 827 912
e-mail: hi-fiworld@webstore.co.uk

PHOTOGRAPHY

David Noble
tel: +44 (0) 20 8206 6019

WRITERS

Paul Rigby, Jon Myles, Martin Pipe



Is it all down to the super-moon and cosmic influence? I'm not talking about the sound of cables this time, but the sudden flurry in take-over activity in UK Hi-Fi plc. Some weeks ago now Tannoy (est. 1926) were absorbed into German firm Music Group headed by Uli Behringer who uses this company as a holding vehicle for many, many pro-audio brands, including his own Behringer – well-known for its pro-music products.

For me, as editor of Hi-Fi World, the takeover was 'close to home' in many senses because I have a long-standing interest in Tannoy and their products as well as a deep appreciation of the company sound – popular in the music business for its dynamic nature which is why Tannoy loudspeakers have been used widely as studio monitors in the past. Happily, Hi-Fi World remains just about the only magazine able to competently measure and audition big Tannoys so again we get their latest and greatest for your delectation - the GRF90s featured in this issue.

After Tannoy came the news that Monitor Audio have taken over Roksan. This did surprise me because Tufan Hashemi has been running Roksan for a long, long time (est. 1985) and is a deep enthusiast as well as a charming MD whose company I always enjoy because he is very amenable to telling me all when I ply him with wine at our North London local. This is how you keep up to speed in hi-fi!

And now another big surprise, as a major stalwart of UK hi-fi, SME (est. 1946), gets new management. SME reside in the lush countryside of Southern England, at Steyning in Sussex. Founder Alastair Robertson-Aikman, was a renown perfectionist, insisting tractors mowing his fields outside the mansion window execute perfectly straight lines to the horizon! Alastair also listened to stacked pairs of Quad electrostatics driven by our own World Audio Design 300B amplifiers after I insisted he must stop using imperfect transistors!

Of course, it may not be the moon or anything else cosmic having influence, rather than more earthly issues like a shrinking market with ever more companies vying for a piece of it. Companies have to keep up – and it isn't easy.

I hope these British companies, all of whom are founded on quality, continue successfully – and we can continue to review their products for you.

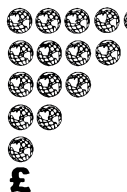
Noel Keywood
Editor



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Buspace Studio,
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verdicts



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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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Our Agents in Malaysia Millennium Hi-Fi & AV Simon Chang Showroom & office, 500-1-3 First Floor Wisma Indah (Shen Court), Jalan Tun Razak 50400 Kuala Lumpur, Malaysia

Tel: 603 9283 8171 Fax: 603 9281 3762 e-mail: info@millennium-audio.com

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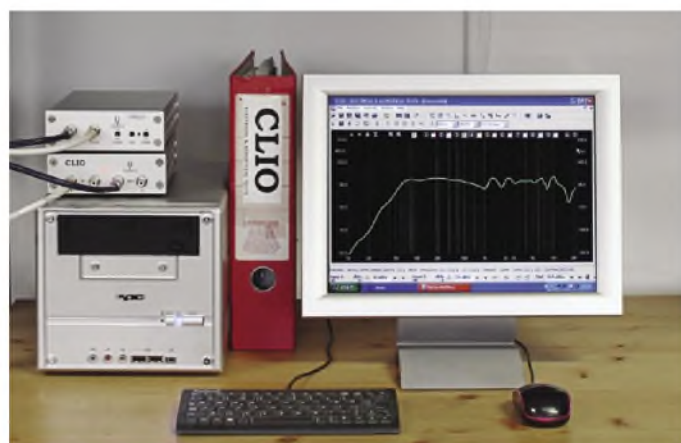
Hi-Fi World measurement

Testing Tannoy's GRF90 floorstanding loudspeakers.

The products we review are tested first to ensure they work properly and meet their manufacturer's specification. Our measurements also look at factors that affect sound quality, like frequency response, distortion and dynamic range, as well as those that affect compatibility, such as output level, output power etc.

These tests are complex and can only be made using a professional audio analyser, calibrated to international ISO standards to ensure accuracy – we use the excellent Rohde&Schwarz UPV.

Loudspeakers and headphones require acoustic analysis. For this we use the well known Clio test system from Audiomatica, Italy to provide reference standard acoustic measurements, within a very large 6500 cu ft test room. You can be sure our loudspeaker reviews, covering the full audio band from 20Hz to 20kHz, are accurate as a result.



This month we were faced with measuring Tannoy's big GRF90 loudspeakers – no easy task. The professional loudspeaker measurement system we use (Clio) fires a wide variety of short burst test signals and shuts off suddenly (gates) to cut out residual room effects. This set-up is a modern alternative to an anechoic chamber, using electronic trickery to deliver equivalent results. Used in a large room it delivered the same result as Tannoy's anechoic chamber.

Music-like noise called 'pink noise' is used to measure frequency response over a wide variety of mic positions to look at dispersion, then short signal bursts used to get a high resolution response free of room influence. Both give an accurate result right down to lowest bass frequencies (20Hz).

A variety of other measurements are made. Sensitivity records how loud the loudspeaker goes from one Watt of (pink noise) input, with the microphone 1m away. Modern loudspeakers go very loud with such a small input.

We also publish an impedance curve for the Tannoys, as for all loudspeakers. This is a simple but very meaningful measurement of how the loudspeaker acts as a load on an amplifier. Impedance curves say much about the design of a loudspeaker, especially its bass behaviour and acoustic damping.

email:news@hi-fiworld.co.uk

news

AUDIO RESEARCH VT80 POWER AMPLIFIER

Contained within a metal chassis (offered in a black or 'natural' finish), this 75W amplifier features two 6H30 driver valves plus four KT120 valves.

Around the back are singled-ended and balanced inputs, a tube-hour metre, a 12v trigger and RS232 port for remote control, plus brass and gold binding posts for 'speakers.

You'll also find a switch to engage or defeat an auto-off function, triggered when no input signal is found after two hours.

The VT80 valve amplifier provides new features, provided by Audio Research for the first time. They include an in-house developed auto-bias circuit. Hence, when you install the valves into the amplifier, the VT80 will adjust bias for each. The amplifier will also adjust itself as the valves wear out and change in real time. This feature can be applied to the 6550, KT88, KT90, KT120 or KT150.

The second new feature is the fusing of each valve. This means that a fault that might have previously blown a resistor will now only blow an easily changed fuse.

Weighing in at 46kg, it spans 483 x 262 x 185mm and is priced at \$8,000

To learn more visit www.audioresearch.com



KEF LS50 WIRELESS

This is an active, digital and wireless lifestyle audio system consisting of two speakers.

Designed in honour of the 55th anniversary of KEF, the LS50 Wireless is closely based on the design of the LS50 speakers.

The cabinet, Uni-Q driver, port and cabinet bracing are all the same as in the original design. KEF's Uni-Q driver technology places the tweeter in the acoustic centre of the bass/midrange cone.

Amplification arrives courtesy of 230W in a bi-amp dual mono configuration. A time-correcting DSP crossover is included too.

The LS50 Wireless system uses a 24bit/192kHz digital signal path throughout and a dedicated DAC for each channel and also 2.4GHz/5GHz dual-band Wi-Fi network connectivity and Bluetooth 4.0 aptX (with an eight-device memory and 10m range). An Asynchronous USB (Type B) connection is included along with a TOSLINK optical socket and a set of RCA Phono sockets and sub-woofer output.

Available in titanium grey/red, gloss black/blue, and gloss white/copper finishes, the set is available for £2,000.

To learn more, click uk.kef.com

Q ACOUSTICS CONCEPT 500

Q Acoustics has announced a new flagship loudspeaker. The Concept 500 floorstander was unveiled to a select group of international journalists – including Hi-Fi World – at the company's research and development facility in Woking in Surrey.

Developed in conjunction with renowned audio consultant Karl-Heinz Fink, the 500s have been built from the ground up with special attention paid to eliminating cabinet noise. To that end it uses Dual Gelcore technology where three layers of MDF are sandwiched by a flexible gel that absorbs high-frequency vibrations and turns them into heat.

This is combined with stiffer internal point-to-point bracing and Helmholtz Pressure Equalisers to minimise cabinet interaction from the drivers so aiding stereo imaging.

The drivers are also a new design – with two low-distortion 16.5cm mid/bass units employed alongside a 28mm soft-dome tweeter arranged in a D'Appolito configuration. These are held in place from behind by spring-tensioned retaining bolts instead of being physically screwed to the fascia.

Jumpers on the rear allow high-frequency response to be adjusted by +/- 0.5dB while a chrome-plated die-cast pinth is used for stability. Standing 1150mm tall the Concept 500 and comes in gloss black or white with rose wood or light oak veneered panels at the rear. Priced at £3599 the loudspeakers are due at dealers in February.

Initial listening at the launch revealed a spacious, expansive stereo image with exceptional bass response and a clean, fast sound. We'll have a full review in a forthcoming issue of Hi-Fi World.



MARTIN BUTTRICH-BRANDED RUARKS

Ruark has announced the limited edition run of DJ Martin Buttrich's, branded MRI Bluetooth speakers.

The speakers themselves have not changed in technological terms and remain as before. That feature list includes wireless audio streaming from Bluetooth devices with aptX technology, subwoofer output plus a compact remote control, whilst the wood enclosure design will feature Buttrich's name on the side.

Buttrich has appeared on labels such as Planet E, Four:Twenty, Cocoon, Poker Flat, Nervous, Desolat and his own label Rhythm Assault. Price for the speakers will be £319.

To learn more go to www.ruarkaudio.com or call 01702 601410.



JBL 4367 AND 4429 STUDIO MONITORS

The JBL 4367 and 4429 studio monitors combine new acoustic systems with the company's pro-audio design featuring blue front baffles and exposed mid/high-frequency horns and incorporating drivers and technologies derived from the company's M2 Master Reference Monitor. It utilises JBL's patented D2 compression driver technology featuring the D2430K dual-diaphragm/dual voice-coil driver, which employs two annular (ring-shaped) diaphragms and two voice coils.

The D2 driver operates into JBL's newly developed High-Definition Imaging waveguide. JBL's 2216Nd 380mm Differential Drive cast aluminium frame woofer from the M2 is modified with a new spider and surround treatment.

The 4367 features front-panel high frequency and ultra-high frequency trim adjustments for the fine-tuning of audio response according to the system and room. Its heavy-duty dual binding posts allow bi-amping or bi-wiring while its 94dB sensitivity and 6 Ohm impedance enable the 4367 to be driven up to 300W.

The JBL 4429 system is a wholly updated version of the company's 4425 studio monitor. Its acoustic design includes a 19mm titanium diaphragm, ultra-high frequency compression driver which joins an improved 50mm titanium diaphragm high frequency compression driver in a one-piece SonoGlass horn system. Price for the 4367 is £11800 and for the 4429, £5800.

For more info call 01423 358846 or click www.karma-av.co.uk

MONITOR AUDIO ACQUIRES ROKSAN

Loudspeaker manufacturer Monitor Audio has acquired North London hi-fi company, Roksan. Roksan was founded in 1985 by Toufan Hashemi and specialises in amplifiers and other hi-fi electronic products. These will now become a part of Monitor Audio's portfolio. "The two companies will continue to run as separate entities but under common ownership" say Monitor Audio. Since both produce quality products it looks like a good partnership.

For more information please contact: info@ammonitemedia.com



NOBLE AUDIO SAGE IEM

Noble Audio has launched Sage, a new universal-fit US-made multi-driver IEM which features the company's new proprietary driver technology

Sage is a two-driver design which sits squarely in the middle of Noble's five-strong universal-fit Classic line. It directly replaces Savant but introduces updates.

Sage's new balanced armature driver configuration features a repositioned vented bass port plus an increase in aperture. The IEM also features a detachable cable with an industry standard 2-pin connection allowing future upgrades from aftermarket cable specialists.

Further features include a Pelican 1010 case (crush-proof carrying case), a black velvet soft pouch, twelve pairs of ear tips (four kinds in three sizes), two Noble Audio bands or amp bands, a cleaning tool and a Noble cable and an ownership card. Price is £549

To learn more go to www.nobleaudio.com.





MCINTOSH'S MX122 PROCESSOR

McIntosh Laboratory's MX122 processor features Dolby Atmos and will be upgradable to support DTS:X and Auro-3D. In addition to 3D audio, existing formats such as Dolby TrueHD and DTS-HD Master Audio are supported for legacy disc collections. It is also fully compatible with modern 4K Ultra HD video sources and can upscale lower resolutions to 4K Ultra HD.

The MX122 offers seven HDMI, four digital, one balanced and eight unbalanced analogue stereo, an unbalanced 7.1 multi-channel audio, three component and four composite video, along with USB. For multi-room, users can create two additional 'zones' in the home and send select audio and/or video to them. Outputs include both balanced and unbalanced connections configured for 11.2 surround sound, three HDMI, two component and two composite video and two unbalanced stereo. The MX122's processor is compatible with a variety of high-resolution digital music formats up to 24bit/192kHz. The MX122 sells for £6,995. See www.jordanacoustics.co.uk.

CANTANO W & T

Cantano, weighing in at 29kg, is a project from CNC-Fertigung Gronemann in Berlin. The base of the two-speed Cantano W is a slate, encased in precious wood. Through the high stainless steel base, it is tonally decoupled from the turntable. The upper part of the turntable is made out of graphite of special density, while the lower part, constructed out of black anodised aluminium, is responsible for the belt drive.

The bearing of the resonance-minimised turntable consists of hardened steel and solid carbide. Five longitudinal lubrication grooves, equipped with a lifelong oil filling, are included. A sapphire ball forms the base of the bearing. The suspension of the tonearm is designed to enable quick assembly and change at any time, despite fixed wiring and without intermediate bushing. It is possible to combine the drive with any tonearm by any manufacturer.

The Cantano T arm uses titanium for the construction of the tonearm and head-shell. The unipivot-bearing base with an additional lateral guide keeps the arm from swinging along the longitudinal axis. Price is £9,990.

To learn more click www.cantano.berlin/en/.



VON SCHWEIKERT ULTRA 11 SPEAKERS

On the front, these speakers feature four 203mm honeycomb sandwich triple-layer ceramic bass units, two 152mm dual layer ceramic coned midrange drivers featuring a Kevlar-threaded layer of resin, two 30mm tweeters with Beryllium diaphragms driven by Neodymium magnetic ring fields and proprietary damping technology and one 127mm ribbon Super Tweeter with Neodymium magnetic driver and Controlled Directivity to blend with the Dome Tweeters.

On the back? There are two 381mm carbon fibre/Rohacell sandwich subwoofers with Linear Drive suspension and FEA-optimised motor structure, two Ambience 30mm domed tweeters using a Wave Guide horn for Controlled Directivity and one 127mm Super Tweeter ribbon with Neodymium magnets.

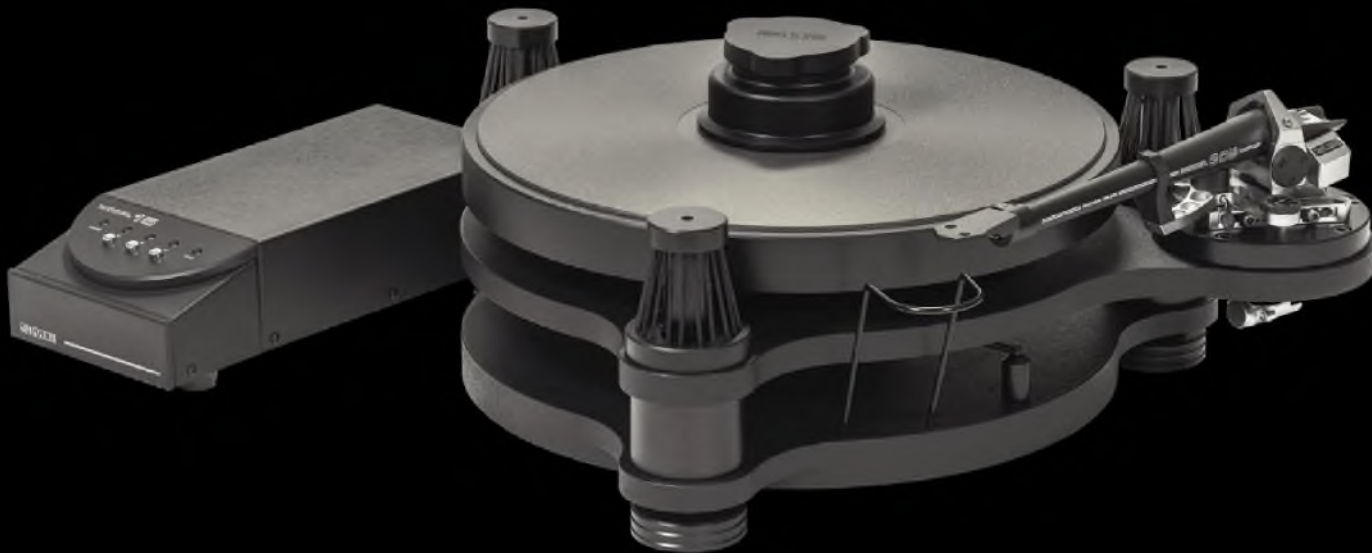
The ULTRA 11s utilise VSA proprietary Triple Wall Noise Reduction technology which utilises vibration damping layers to cancel the cabinet wall resonance by vibrating at opposing frequencies.

The rear woofers are each driven by a 1000W Class D amp while these units can be played either as dipole or monopole. The rear of the speaker has trim switches and over 30m of Master Built Ultra cable is internally wired in each channel. Each signal path is individually shielded and damped with point to point connections. Price is \$300,000 for the pair.

To learn more click on www.vonschweikert.com

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MODEL 15



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The Model 15 could be described as "the ultimate in recovery vehicles", allowing the cartridge to retrieve the last nth of recorded material whether digital or analogue, from the vinyl disc and thus approaches the ultimate in perfection.

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SME Limited

Mill Road
Steyning
West Sussex
BN44 3GY

T +44(0) 1903 814321
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E enquiries@sme-audio.com
www.sme-audio.com

*Audio
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Audio Lounge
138 Wigmore Street
London W1U 3SG
020 7487 4080
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90 Now

To celebrate their 90th Anniversary, Tannoy have launched the new GRF90 into their Prestige range. Noel Keywood lifts and listens.

Only Tannoy make loudspeakers like this – and what a shame. Their new GRF90 is a massive room mover quite unlike anything else – except for

their larger models! Big loudspeakers produce a big sound – Tannoys especially so. All the same you do need a big house and big pockets to go with them, partly explaining why the new GRF90 is a rare beast on

this planet.

The GRF90 exploits fundamentals by placing one enormous Dual-Concentric drive unit in a suitably enormous cabinet – simple stuff in basic outline. It

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"Tellurium Q have surpassed themselves here. It is often said that all cables colour the sound of a system to some extent, but the Silver Diamonds do it to a lesser extent than any other product I've heard so far."

John Myles, HiFi World

"If you're looking for a major jump in your system's performance, I'd suggest buying a pair of these instead of considering a hardware upgrade. Before you write this advice off to cable delusion, expectation bias, or the recent Mercury retrograde phase, please take note: I have never said this in TONE's 11-year history"

Jeff Dorgay, Tone Audio

"Well, I have just stumbled upon a speaker cable that I'm very tempted to put in a class of its own"

Mono & Stereo



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+44 (0)1458 251 997





Two massive rear ports and a bi-wire connection panel with earth terminal. Bare wires, spades and 4mm banana plugs suit.

reminded me of the Yorkminsters I lived with and loved long ago (review, April 2006). That was a loudspeaker of cathedral dimensions with the power and majesty to fill such a place.

The new GRF90 alludes not to a building but to Tannoy's founder Guy R Fountain and the age of the company – 90 years. But like the Yorky it aims to deliver music at a scale other loudspeakers can only dream about. Think massive dynamics, brutal bass power, deep subsonics and the ability to move a room with effortless ease.

OK, so you ideally need a castle to enjoy them – and withstand them – or a home similarly well removed from other homes for acoustic rather than defence reasons. Then there's the price tag of £17,100 a pair. What you don't need – as some recompense – is a big amplifier.

As I explained in my column last month, getting big Tannoys in for review is a feat in itself. Each GRF90 in its carton weighs 95kgs, as the carton warns in big print. It takes

many hands and goods trucks to move them. Removing cabinet from carton is a significant task especially as the oiled walnut veneered cabinets are easily damaged.

Standing 1240mm high (4ft approx – 20% higher than most floorstanders), 550mm wide and 465mm deep, the cabinets have a big presence but they can be moved back fairly close to a rear wall, so don't necessarily occupy more floor space than other floorstanders. However, to hear what the GRF90s can do, a big room is necessary, so space is unlikely to be an issue. I would say 20ft was a lower limit for the GRF90s. Yorkminsters in my 17ft long lounge did not work at all, where they thundered in our 24ft long office of the time; the contrast could not have been greater. Room size is critical then; you will only understand what a GRF90 can do in a large room.

In the cabinet lies just one 12in Tannoy Dual-Concentric drive unit. In fact there are two units here, a tweeter firing out through the throat of a woofer. The aluminium alloy dome tweeter lies at the base of an attractive brass coloured horn that you can see placed centrally in the throat of the big bass cone. A pepperpot waveguide smooths treble.

Firing out through the centre eliminates time and phase matching issues and also gives the same sound balance at all listening angles - so wherever you are in front of the speaker it sounds the same.

Reflected sound from ceiling and walls is the same too, where it is not in multi-driver loudspeakers, and this is quite important in the brain's ability to compose a cohesive and believable sound picture.

And finally, the deep bass cone radiates forwards strongly, but less so sideways, forcing sound at listeners – partly explaining the punchy quality of a big Tannoy.

All of which is to say that although the big GRF90 looks old-fashioned and technologically backward, it is not. The underlying principles work well even today, which is why big Tannoys sound so good – and remain unique.

The 12in paper bass cone can move massive amounts of air and generate huge bass power. It is aided by a huge 7.4 cu ft cabinet, this being two to three times larger in volume than other floorstanders. At rear sit two huge ports, making this a bass reflex design.

The front panel carries a large, solid hewn brass front adjustment plate. On it are thumb screws that set Treble Energy and Treble Roll Off. Think of Treble Energy as the loudness of the treble unit relative to the bass unit. Treble Roll Off alters upper treble output only, boost or cut. I had a discussion with Tannoy about all this, explained further in Sound Quality and Measured Performance.

The rear terminal panel carries large bi-wire terminals and an earth terminal. The latter earths all internal metalwork back to the amplifier and screened cables are recommended, to minimise radio pickup. The units are coupled by provided bi-wire links, so can be mono or bi-wired or bi-amped.

The cabinets are heavily built and very sturdy, of castle-like strength in fact. They sit firm of their own accord, so there are no spikes, only feet. Big cloth covered grilles can be put into place easily and quickly. A box with wood polish, instruction manual and bi-wire links is supplied.

These speakers exude quality of the old-fashioned kind, explaining why they are so popular in the Far East. Brits may not get it but Chinese and Japanese do – and buy it.

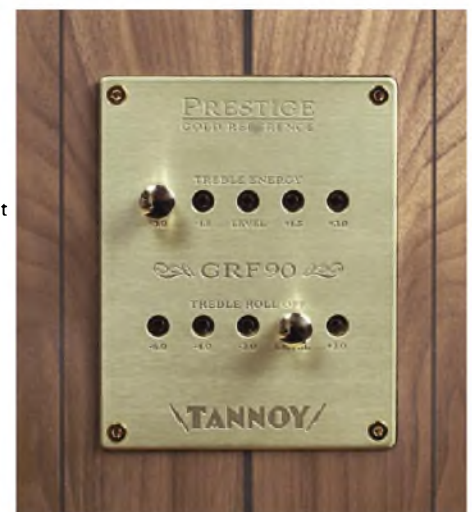
And finally we also received a box with a pair of Super Tweeters – that proved fascinating. See our box out on these.

SOUND QUALITY

Tannoys need a decent run-in of around 40 hours minimum, although a dealer once told me Westminster's need months for the woods to settle. We didn't have months, so put 48 hours on ours, only to find Tannoy had already run them in for us. Ta!

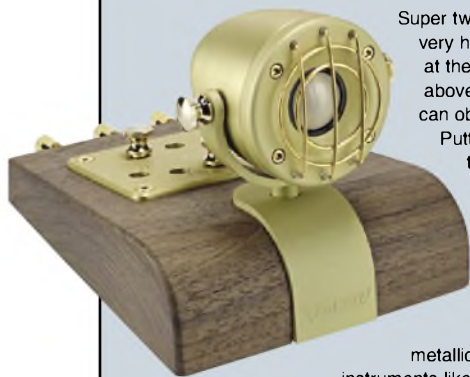
And now to the adjustment panel. I asked others at Hi-Fi World towers not to listen and judge before I had measured and adjusted, but they did of course and their reaction wasn't overly enthusiastic: they were bright and forward, a tad challenging, I was told.

We had two problems here: set flat as delivered ('Level' on the



The etched front adjustment plate carries Treble Energy and Roll Off thumb screws. They are more durable than switches.

TANNOY ST-300MG SUPER TWEETER



Super tweeters produce very high frequencies, at the top of – and above – what the ear can obviously detect. Putting my ear close to Tannoy's ST-300Mg I could hear only very sharp and wispy sounds at low level, the upper harmonics of metallic percussion instruments like cymbals and triangles in the most part.

The Prestige GR units are natively designed to resemble an old Tannoy microphone, hence their ovoid shape and gold anodised metalwork. Inside lies a dome tweeter that is fed from a high-pass electrical network that feeds in only very high frequency audio – all else is blocked. They sit on top of the loudspeaker. Tannoy say they reach 62kHz.

A user adjustment panel allows both sensitivity and high pass frequency to be adjusted. There are five sensitivity settings and three high pass settings. The default here is 16kHz, where Tannoy's Dual-Concentric drive unit cuts off, our measurements show. Options are 14kHz that will audibly strengthen extreme highs, and 18kHz that will subliminally strengthen them.

They are simply connected across the loudspeaker terminals but cables are not supplied where I feel they should be and connection to the loudspeakers was made awkward by lack of easy accommodation on the terminal panel. The Super Tweeters need a connecting cable terminated with spades to free the loudspeaker terminals for bi-wiring and/or to share terminals with the mono-wire links. An alignment protractor is provided to set position back from the cabinet front so as to align with the main driver's treble unit.

The aural impact of the Super Tweeters was fascinating. Connecting up after extensive use, I set both Super Tweeter controls to maximum (95dB / 14kHz high-pass), worrying I would not detect them. Whoa! It soon became evident they have a big influence at the listening position and I had to jump up and rein them back to 92dB and 16kHz high-pass. Listening to them close up they can be heard but there seems to be little coming out, yet in conjunction with the loudspeakers, and sitting 12ft away, they had surprising effect.

Firstly, they added air and space around singers and instruments, as if increasing the size of the space in which they were singing. Then they hardened up transient edges, giving the speaker an unusually strong grip on timing: transients took on the quality of hammer-on-anvil. Here I heard what others find with super-tweeters, that they seem to speed up bass. More succinctly I feel, they subjectively harden up bass – qualitatively, not just in its timing. With Super Tweeters connected, the opening of 'Samb Adagio' made me jump, a small rustling cymbal (synthesised) that precedes all else jumping out like a ferocious insect. Then the track got into its stride and the thunderous synth pulses hit me even harder as if a cloth cover had been removed from a hammer head so there was absolutely nothing to soften the blow. Overall, the Super Tweeters are an influential and a worthwhile addition.



adjustment panel) they were not flat in frequency response terms when measured, tweeter output being high – too high in my opinion. And the drive amplifier at the time was our McIntosh MC152 – a fabulous device with deep detailing and a grip of steel, but also quite forceful up top. What was needed was our currently resident Icon Audio Stereo 30 SE single-ended valve amplifier with its silky treble – a perfect match for any big Tannoy.

I spoke to Tannoy and they said 'Level' had been set subjectively by their own listeners – a bit surprising because Tannoy have an anechoic chamber that supports accurate measurement and it had been over-ruled. Hi-Fi World listeners are exposed to a stream of loudspeakers of all sorts, on review, most of which measure near flat so their ears are calibrated by experience; our subjective view of Level was different to theirs. I mention all this just to explain the background details that affect manufacturer's views and our views, reminded in this instance that it was Alex Garner (ex-MD, Tannoy) who told me loudspeaker manufacturers live in their own cocoon – a source of both uniqueness and insularity.

Sources were an Oppo BDP-105D Universal player to spin CD, with an Astell&Kern AK-120 portable player connected optically to provide high-resolution digital. Cables were Tellurium Q. Our listening room is 25ft long, 18ft wide and 6500 cu ft in volume due to a high, sloped industrial ceiling; it suits Tannoys.

With Treble Energy set to -3 for flat frequency response (see Measured Performance) and the Stereo 30 SE warmed up, we were off!

As always these Tannoys put up a huge soundstage, and delivered instruments and vocalists with force; Josefine Cronholm took up a big and strong presence in front of me, standing centre singing 'In Your Wild Garden'. The GRF90s put even more weight and substance into images, of people and instruments, than other Prestige Tannoys, I fancy – their cryogenically treated crossovers being the reason.

Also, I find Tannoy's 12in Dual is sonically more appealing than the 10in in the Kensington and the 15in in the Westminster – which is likely why I liked the Yorkminster so much, and the GRF90 had a similar sense of grip

on events, allied to massive scale, of the Yorky.

But even with Treble Energy pulled back to minimum the tweeter was still obvious and at times forceful, but not intolerably so. It is ruthlessly revealing – and this is why a super smooth Single-Ended valve amplifier free of crossover distortion like the Icon Audio Stereo 30 SE is the best match; you otherwise get the blemishes of the amplifier thrown at you.

Whilst bass was massively powerful it was also clean, easy going and seemingly expansive, not being dogged by colour or internal cabinet reflections. So the bass line behind Skunk Aanasie's Skin singing 'Hedonism' strode along in a nice easy manner, each note having well defined pitch and a fleshed out sense of form. By comparison smaller speakers give a more generalised sound, a vague event pattern, whereas the GRF90s had no difficulty in finding detail and timbral richness in strong bass lines.

Hearing Willy DeVille on stage singing 'Spanish Harlem' live was a superb experience. The GRF90s put him above and in front of me, with the audience whooping in the background. His slow, gravelly drawl had a spine chilling presence in the room and the 12in Dual showed what it could do by expressing the dynamic contrasts within this live performance: "In" had emphasis I had not heard before, as he sang "In my garden". Other 'speakers flatten dynamic contrasts like this, I realised.

To check out the GRF90s at high volume I had to go into our London offices on Sunday when the building is empty, to avoid complaint. They generate enough power to pass through the structure of the building – ours once being a bus garage! Spinning Safri Duo's 'Samb Adagio' at high volume showed how clean and relaxed these speakers are with the wick turned right up – to as loud as I could stand (97dB at the listening position). This is a synth fest of explosive drum beats with a floating organ drawing out a fluid backline. It's a test of power and dynamics, one the GRF90s shrugged off: they delivered thunderous bass power from the drum beats, whilst the organ work drifted along unperturbed. Again, the 'speakers showed total composure.

The GRF90s image high, putting a sound stage in a rainbow arc between the cabinets that, when



A hinged wooden box carries six floor protective cups for cone feet (3 per speaker), mono-wire links, wax and manual.

seated, beamed singers down at me, giving them elevation. Images are large, not pinpoint, but succinctly outlined. Here, the phase consistency of the Dual-Concentrics showed through, making conventional multi-driver speakers seem a tad disjointed in comparison; these 'speakers have focus.

With classical music the large but densely textured images had a 'big impact, especially on Nigel Kennedy's Stradivarius that was less diaphanous and fuller bodied than other loudspeakers giving his playing in Massenet's 'Meditation' great aural impact. It was like moving from a middle row to the front row – the violin was 'big and I could hear much more. The instrument was brightly lit, but pleasantly so I felt. Accompanying strings swelled behind him with unrestrained intensity.

Orchestras had scale of course, especially in 'The Planets' where kettle drum strikes were momentous occasions and string sections stretched wide across the sound stage.

The piano of Arcadi Volodos, a Steinway Grand, took massive form in the room while he worked through 'Vallee d'Obermann', individual notes sounding solid and pure as he played with slow deliberation, whilst chords had crashing power when his left hand assaulted the keyboard. The Steinway had a rich density to its sound, as well as scale, the Tannoys giving a very close up view.

What are the weaknesses of the GRF90? One commonly mentioned with Dual-Concentrics is that instruments and singers seem to come from a megaphone. Or as one person put it: "she's singing inside

a phone booth". I suppose so and – spending most of my time with Martin Logan electrostatics – this should worry me especially, yet it doesn't; I seem to have acclimatised. Jon Myles mentioned that the Super Tweeters alleviated this effect.

The horn tweeter is not especially smooth and has a hard quality. The big Dual moves from a 12in paper cone to a metallic alloy dome within a brass horn – and disparity is there in the sound. All the same, the horn inserts the pushiness of a Tannoy Dual – explaining why it is a 'take no prisoners' loudspeaker that delivers with force. The adjustment panel needs a slow roll-off option that current mis-calibration doesn't allow, so a softer sound balance is available.

CONCLUSION

The GRF90 is a fabulously well-engineered big loudspeaker. Not only that, it has unique strengths like total phase consistency that make its sound unique. Superbly engineered,

LOUD FROM LITTLE

Big Tannoys are known for their sensitivity, meaning they go very loud at low volume settings – much louder than normal sized loudspeakers. To put figures on this, I was hitting 97dB sound pressure level – as loud as I could stand – where I was sitting, 4 metres distant from the speakers. The Icon Audio Stereo 30 SE's output (volt) meter registered 30 on a scale of 100, meaning I was using 5 Watts to produce volume the building could not stop and the neighbours could not stand.

This is why Tannoys are very sensitive to transistor amplifiers; they work on the first Watt, which can be laden with crossover distortion. High quality, low power Class A transistor amplifiers best suit, like Sugdens.

Single-ended (SE) amps eliminate this issue completely: they don't suffer crossover, making them ideal. But for this valves must be used, because SE transistor amps are rare. **NK**

it is no boring academic wonder, nor an anachronism as it might appear, so much as one of the most powerful and impressive loudspeakers I've ever encountered. Tannoys are all about the big loudspeaker sound: big soundstage, big dynamics and endless bass depth. I fell for this sound long ago with Yorkminsters and coming back it in the form of GRF90s reminds me why I think it is one of the most exciting and impressive loudspeakers I have ever heard. If my lounge was bigger, I'd buy them.

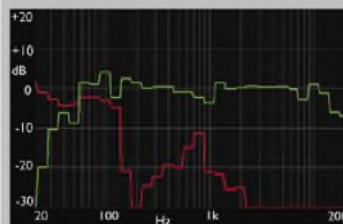
MEASURED PERFORMANCE

The GRF90 has Treble Energy and Roll-Off adjustment on its front panel. Set to 'Level' the central horn midrange/treble unit delivers raised output from 1kHz all the way to 16kHz, enough to make the speaker sound bright and forward. Setting Treble Energy to -3dB gave the most accurate result, shown in our analysis here. The adjustment system needs re-calibration to make a warmer balance option available.

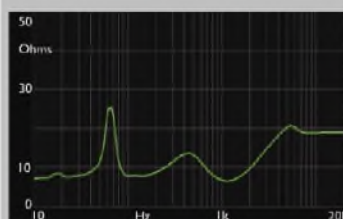
This apart, the GRF90 measures reasonably flat across the audio band, with just a small dip at 1kHz as the big paper bass unit rolls away in output.

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



Dispersion was very even from the dual-concentric and off-axis listening is possible, although high treble does start to roll away above 16kHz unless treble lift is chosen in the adjustment panel, or Super Tweeters used.

Bass output is very strong, as you'd expect. The two huge rear ports deliver big bass power from 150Hz down to 20Hz (red trace), peaking sharply by +10dB at 18Hz. As a result the 'speakers are capable of massive subsonics in large rooms (> 25ft) and will give awesome bass in typical Tannoy fashion in any room. The flat nature of output from the bass ports indicates superb bass damping and control too. In all then, the GRF90s will deliver hugely powerful, but tuneful bass, underpinned by room shaking subsonics.

Whilst having a high measured impedance of 8.1 Ohm, meaning low current draw, the speakers still delivered 91dB sound pressure level from 1 Watt of input, so 40 Watts is about all that it is possible to use with this speaker. They are a very easy load on any amplifier, transistor or valve.

The GRF90s make full use of Tannoy's 12in Dual-Concentric drive unit in a large cabinet to deliver a performance conventional loudspeakers are unable to match. They are accurate, easy to drive, need little power, will run intensely loud without strain and shake any room. **NK**

TANNOY GRF90

£17,100



OUTSTANDING - amongst the best

VERDICT

Music with scale, speed and focus, these loudspeakers are awesome, impressive – and fun. How to blow your mind and enjoy it.

FOR

- huge scale
- big dynamics
- intensely detailed
- solid imaging

AGAINST

- size
- hard midrange
- mis-calibrated adjustment panel

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Jon Myles pairs Bluesound's Vault 2 storage device with NAD's Master Series components to create an impressive streaming system that can meet all needs.

High-Res Heaven

For an elegant solution to steaming music to different rooms around the house then the Bluesound series of products is up there amongst the best.

Devised by Canadian audio giant Lenbrook, it brought together experts from its NAD electronics and PSB loudspeaker divisions to engineer a music storage and streaming ecosystem that combines

ease of use, good sound quality and the ability to handle high-resolution digital files (unlike some other well-known rivals).

But the Bluesound range (streamer, amplifier, various 'speakers plus ripping and storage) don't all need to be used together and have the ability to be integrated into other hi-fi set-ups at various price points.

Hence the system on test here that pairs the Bluesound Vault 2

priced at £1099 with components from NAD's flagship Master Series in the shape of the £3299 M12 digital pre-amp/DAC plus the £2799 M22 power amplifier.

To say this is a flexible system would be something of an understatement, mainly thanks to the M12 and Vault 2 which boast a plethora of input/output, connection and operation options. Being a power amplifier the M22 is considerably

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simpler but still contains some interesting engineering (of which more later).

First, though, the Vault 2. A fairly compact box at 90mm x 220mm x 240mm (H/W/D), it still contains a CD ripper, 2TB of hard disk storage, DAC, aptX Bluetooth and streamer. There's also built-in connectivity for the likes of Tidal, Spotify and Quboz.

It uses a 1GHz ARM Cortex-9 multi-core processor plus the latest version of the latest generation of Texas Instruments Burr-Brown PCM5242 32bit 384kHz differential output DAC.

The unit needs a wired ethernet connection to function and ripping CDs to its internal storage involves sliding the disc into the front slot and then waiting. Once finished it automatically ejects with album details, track details and artwork automatically downloaded from an on-line database. Average ripping time varies from between 5 to 10 minutes but can also be done while you are playing back material, so is easy to accomplish.

High-resolution material can be dragged and dropped to the internal disk via a computer (both Apple and Windows supported) while the Vault 2 will also recognise and playback music stored on networked NAS drives and desktops or laptops. Do note, though, that the Vault 2, like the M12 pre-amp/DAC, is not UPnP/DLNA compliant but uses its own BluOS operating system. This means you do have to set-up some file sharing preferences but the Bluesound website guides you through the process and it takes no more than 10 minutes.

Apart from the streaming option, there are USB A and B inputs and a combined 3.5mm analogue/Toslink digital inputs, while outputs include coaxial and optical digital, a 3.5mm headphone socket, analog RCA

stereo (with both fixed and variable volume control) along with a dedicated sub-woofer out.

Soft-touch buttons on the top give access to all the controls but you are best advised to use the free mobile app (both iOS and Android) which gives you a host of features such as album artwork, track time plus the opportunity to buy high-resolution music from the likes of HD Tracks.

The partnering M12 is a considerably more complex beast that operates mainly in the digital domain. So while it includes an MM/MC phono stage and balanced analogue input, both are converted to digital through a PCM1804 ADC (24/192) from Texas Instruments.

Buyers can choose from a series of slot-in modules to specify what features they want. Ours came with the new BluOS board meaning the unit can communicate wirelessly with the Vault 2 and also be controlled via the app.

Digital inputs are asynchronous 24/192 USB, plus AES/EBU, coaxial and optical S/PDIF digital. There are also (defeatable) bass and treble trims if required.

Both the M12 and the Vault 2 also support the new Meridian MQA (Master Quality Assured) format which means wirelessly streaming these from the latter to the former will take up less of your available bandwidth.

Finally the M22 power amplifier is a Class D design employing Hypex's nCore modules producing more than 250 Watts per channel (see Measured Performance).

EASE OF USE

With all the options available it would be easy to think the NAD/Vault 2 combination would be hard to set-up. Actually, it is just the opposite. The Bluesound operating



The Vault 2 has a 2TB internal hard disk to allow the ripping and storing of CDs, as well as storage of high-resolution material.

system is extremely robust and intuitive. Wireless connection between the Vault 2 and the M12 never failed to let me down and the pair drew in all music files on attached devices without fail.

SOUND QUALITY

Taken as a whole it is hard not to be impressed by the overall performance of this combination. Chiefly there is an open, crystalline quality to the replay.

Playing Eleanor McEvoy's 'Did I Hurt You' ripped to the Vault 2 via CD was impressive in the way the guitar notes and vocals were conveyed. Listening to the same track via a 24/96 recording sounded even better – a more rounded and undeniably atmospheric presentation of the music. The contrast between the two different files was obvious – showing the Bluesound/NAD combination has the ability to pull out the extra depth and realism that high-resolution files can provide.

Moving on to the more forceful 'Seven Nation Army' by The White Stripes I was struck by just how powerful this system can sound. The M22 elicited forceful low end from a pair of standmount Quadral Aurum Galan 9s (see review this issue) – but put into action powering a pair of Tannoy GRF90s with their 12" Dual Concentric drivers the walking bass line could be felt in the stomach.

But it's power is tempered by precision. 'Ana' from Pixies 'Bossanova' has some subtle switches in musical construction, with the twin guitars moving a semitone higher and lower as the vocals come in. The dramatic effect of this was relayed perfectly via this set-up.

Having said that, lovers of a



A full-function remote allows operation of all functions but a free BluOS app is also available for iOS and Android devices.



The rear of the Bluesound Vault 2 includes RCA audio out jacks as well as coaxial and optical digital outputs. Note that the unit must have a wired ethernet connection to function.

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Decoupled Double Dome tweeter



warm, lush sound might not initially take to the M22 amplifier. It doesn't flatter poor recordings as it adds little character of its own to the replay chain. Play some MP3 files through it and the sound can be rather thin.

But with the capabilities of the Vault 2 there's no need to do that - just go for CD quality and above for the best performance.

Which is the beauty of this set-up. It brings together tremendous flexibility with ease of use, future-proofing via NAD's MDC concept plus, most importantly, an infectious sound quality. Rip your CDs to it, download high-resolution files or play your existing computer/NAS-based music collection via its streaming option. You will not be disappointed.

CONCLUSION

Combining the Bluesound Vault 2 with the NAD Master Series M12 pre-amp/DAC and partnering M22 amplifier provides an efficient way to bring all your music together in one package. There's some inevitable

time needed to get it set up but once done it impresses with its sound

quality and ability to get the best out of whatever files you feed it.



The well-stocked rear of the NAD Master Series M12 pre-amplifier. Note the fitting of the optional MDC panel (with aerial) which allows wireless communication with the Bluesound Vault 2.



The NAD Master Series M22 power amplifier has both balanced and unbalanced audio inputs as well as sturdy gold-plated 'speaker binding posts'.

MEASURED PERFORMANCE

The balanced analogue input of the M12 preamp (+6dB setting) possessed a gain of x13 – more than enough to cope with even the lowest output sources. Maximum output was 9V balanced (XLR) and 4.5V unbalanced (phono socket), enough to drive any power amplifier fully; Distortion was low at 0.08%.

Gain from the balanced input to the unbalanced (phono socket) outputs measured x6.7, still a high gain where x3 is a norm.

The Phono input (MM) similarly had high gain, delivering 1.1V to a power amplifier from 3mV in, making all MMs compatible. Overload was adequately high at 40mV and noise low at -77dBV. RIAA equalisation was accurate, giving flat frequency response from 20Hz to 20kHz. A sharp cut-off warp filter attenuates warps by -5dB at 5Hz – not a large amount but still useful in reducing loudspeaker cone flap.

The dynamic range of NAD's own unique (Zetex/Viacomm) DAC measured a massive 129dB, up with the best DACs available (Chord Electronics, ESS), 125dB being a typical best value at present (volume +6dB to avoid output overload with a full range 0dB input). Digital distortion (24bit) at -60dB was a low 0.035%, a small amount of second and fourth harmonics keeping this figure just above the 0.01% possible nowadays.

With a 192kHz sample rate digital input, frequency response extended to 43kHz before rolling away to the 96kHz upper limit.

The M22 power amplifier Class D Hypex modules produced a massive 340 Watts into 8 Ohms and almost double into 4 Ohms of 625 Watts. A very high damping factor of 81 ensures that bass will sound tight and dry.

Frequency response (shown here) was wide and did not alter with load, unlike most Class Ds. Distortion in the mid-band (1kHz) was low at 0.02% but a noise peak at 65kHz affected high frequency (10kHz) distortion figures significantly. Measuring 4 harmonics gave 0.1% (shown here); 9 harmonics took the result up to 0.6% – inferior to conventional Class A/B amplifiers. A high 1.8V input delivers full output.

The M12 and M22 deliver excellent performance figures under measurement, the only blemish being the Class D power amplifier's noise peak at 65kHz. NK

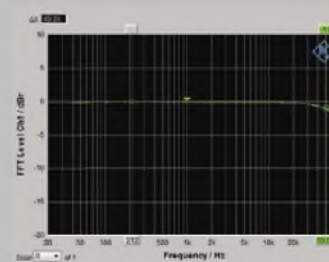
NAD M12 PREAMPLIFIER

Frequency response (-1dB)	24/192	6Hz-52kHz
Distortion 24bit -60dB		0.035%
Separation (1kHz)		102dB
Noise (IEC A)		-127dB
Dynamic range		129dB
Output (unbal, bal)		4.5V, 9V

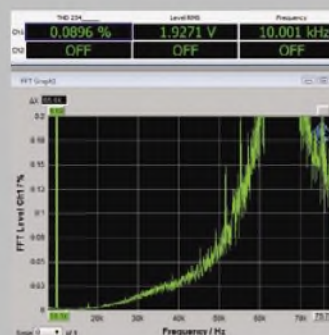
NAD M22 POWER AMPLIFIER

Power	340 Watts
Frequency response	3Hz-51kHz
Distortion (10kHz)	0.1%
Separation	101dB
Noise	-124dB
Sensitivity	1.8V
Damping factor	81

FREQUENCY RESPONSE 4Ω



DISTORTION 10kHz



NAD M12 PRE-AMPLIFIER
£3299

NAD M22 POWER AMPLIFIER £2799

BLUESOUND VAULT 2 £1099



OUTSTANDING - amongst the best.

VERDICT

A hugely flexible ripping/storage/playback combination that also allows music streaming from your network attached devices. Simple to use once set-up, it also sounds extremely assured.

FOR

- flexibility
- huge storage
- detailed sound
- pre-amp can be configured for your needs

AGAINST

- takes time to set-up

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Here's your chance to win the superb Kennerton Magister headphones we reviewed July 2016 issue. Read the review excerpt below and answer the questions.

"The ear cups are carved from solid wood – and not just any old wood but something called Bog Oak. No, me neither – but apparently it comes from oak trunks which have lain at the bottom of deep lakes for thousands of years and having had no exposure to air, becoming as strong as rock.

Add in a headband handcrafted from lamb skin and earcup cushions fashioned from soft calfskin and the Magister looks more expensive than its £695 price tag would suggest.

Inside the earcups is a proprietary 42mm driver featuring a mylar diaphragm which is further strengthened by a titanium coating.

A thick, braided cable plugs into the left and right earcups and, gratifyingly, is a handy 3 metres long which makes listening from across the room viable.

They have an impressive soundstage for a closed-back design. Miles Davis's 'Porgy & Bess' sees the trumpet hang in the air seemingly rather beyond the limits of the earcups. The upper registers here aren't too sharp but nor are they too muted as to rob the sound of bite. Instead it has all the atmosphere this album trades on".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 8th February 2017 to:

**February 2017 Competition,
Hi-Fi World magazine,
Studio 204,
Buspace Studio,
Conlan Street,
Notting Hill,
London W10 5AP**

QUESTIONS

[1] Ear cups are made from -

- [a] wrought titanium
- [b] sputtered aluminium
- [c] chewing gum
- [d] bog oak

[2] Earcup cushions are -

- [a] soft calfskin
- [b] soft plastic
- [c] memory foam
- [d] duck down

[3] How big is the mylar driver?

- [a] 2in
- [b] 0.8m
- [c] 42mm
- [d] 38µm

[4] The design is -

- [a] isobarik
- [b] closed-back
- [c] open-back
- [d] ported

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Give it some wedge!

Martin Pipe bolsters his PC with the inexpensive PC-100USB-HR2 USB DAC from Fostex



required. It is intended to be partnered with Fostex active speakers but other gear can be mated with it too.

Fostex claims that the respective minimum system requirements are Mac OS X 10.6 and Windows 7. The PC-100USB-HR2 is a particularly valid proposition for laptops and netbooks as these lack the internal space and expansion slots for quality soundcards. Socketry is by design rather sparse. All you get are the USB 2.0 port, phono sockets for line output and a 3.5mm headphone socket; note that plugging in headphones mutes the line output. There's no power connector as the PC-100USB-HR2 is USB-powered deriving its 5 volts of DC from the computer.

Heavy filtering inside the unit removes noise, thereby ensuring that the audio circuitry is sustained by clean power. The aforementioned LED indicates power and its colour identifies the incoming signal's sampling rate (44.1 or 48kHz, green; 88.2kHz or 96kHz, orange). Also within the device's steel walls lurk a Bravo SA9023A USB receiver and Burr-Brown PCM5101A DAC; an identical configuration to that employed by the K1 USB 'nanoDAC' made by portable music specialist FiiO. The latter is too small to incorporate the ganged pot that Fostex has specified as an analogue volume control for the PC-100USB-HR2.

SOUND QUALITY

Contrary to Fostex's assertions, the PC-100USB-HR2 is compatible with other operating systems – certainly Windows XP! Funnily enough, in my office I have a network-isolated XP machine that's so full of other hardware that there's no room for a decent soundcard. So I have no option but to rely on the rotten motherboard sound fed to Acoustic Energy AE100 speakers via a Yamaha DSP-A550 amplifier of the same vintage working in two-channel mode. What difference might the PC-100USB-HR2 make?

A helluva lot, as it happens! I used it with a number of applications in Windows DirectSound mode – among them Cool Edit Pro, VLC, Foobar2000, DVbViewer and Audacity. Large hard drives contain a library of music that entertains me as I work. Regardless of the music played – rock, symphonic or electronic – it had a lot more 'life' and body being played via the PC-100USB-HR2. More musical detail was evident, while the soundstage demonstrated sharper focus and better delineation.

It's also considerably cleaner. Listening via Oppo PM3 headphones plugged into the Yamaha, I found that the background burbles had completely disappeared.

Using the PC-100USB-HR2's own headphone amplifier? With Oppo PM3s, I found that all was well at lower listening levels. But wicking up the volume yielded audible congestion – probably the limitations of a 5-volt power supply...

CONCLUSION

For its price the Fostex is an extremely capable little unit. It has the ability to extract extra sound quality from the output of most home PCs while being easy to set-up and use.



Note the Bravo SA9023A USB interface and Burr-Brown PCM5101A DAC. Although the latter can support 384/32, the Fostex design is limited to 96/24.

You may be forgiven for thinking that the compact wedge-shaped object pictured here, snappily-christened the PC-100USB-HR2 by maker Fostex, might be one of those passive volume controls that were all the rage a few years ago. That might have indeed been the case when audio minimalism was fashionable, but technology has come a long way since the late 1980s and the LED above that knob hints there may be something more inside.

The more in question is made possible by advanced surface-mount electronics. It comprises a 24-bit USB DAC alongside all of the necessary support circuitry and a basic headphone amplifier. The PC may have been a boring beige box that lived exclusively in offices during minimalism's heyday but now it's a potent piece of home-entertainment hardware with lots of musical potential. Unfortunately, the sound systems built onto computer motherboards tend to suck, coupling all the musicality of a soggy blanket to an unflinching susceptibility to the high-frequency hash circulating within the PC's innards.

Thus this inexpensive gadget, which sits between your personal computer (Mac or Windows) and your hi-fi system; no drivers are

FOSTEX
100USB-HR2 £80



EXCELLENT - extremely capable.

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VERDICT

This successor to a 16bit unit has the potential to transform the standard of PC audio at low cost.

FOR

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- headphone amplifier can run out of steam.

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Answers by: NK - Noel Keywood; JM - Jon Myles; PR - Paul Rigby; MP - Martin Pipe.

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A pair of QUAD S2 loudspeakers are on their way to GEOFF WILTON, Letter of the Month winner in our January 2017 issue.

Letter of the Month

RIPPING YARNS

Ripping tracks from your favourite CDs to files suitable for playing on your high quality digital audio player sounds like the sort of activity which should be straightforward enough and, certainly, there are more applications than you can shake a stick at available out there for just such a task. Some of these applications make it very easy for the user, but are they providing the best quality file as an end result? Indeed, how does the user even know that he is getting the best result? It's not as easy to get the optimum quality as some might suppose.

Firstly, let's start with the CD mechanism used. Many such devices, especially those supplied with desktop computers, do not positively locate the CD upon the drive spindle but rely on the spindle rising from below and using the effects of gravity to hold the CD in place. This allows for a degree of movement and vibration as the CD spins. Not a good thing, especially if the drive is allowed to spin at its full speed. In such a situation, read errors are almost guaranteed.

Actually, the CD drive mechanisms fitted to laptop computers, especially older models, tend to be much better as they positively locate the disc upon the



Use Exact Audio Copy to rip CD, says Mark Douglas. It "produces better results than most".

spindle, using little ball bearings, to hold the disc firmly in place. An older model laptop is consequently a good choice of computer upon which to rip CDs.

An alternative may be found with some of the (ironically) cheaper portable drive units which employ similar mechanisms. I have one which was supplied by a Chinese company for less than £15 and which uses a mechanism which lists itself as made by Pioneer and which positively locates the CD upon a substantial looking drive

spindle. This ensures that the CD will spin securely upon its horizontal plane with little vibration, a good starting point for ripping files.

A freely available software application which produces better results than most is the Exact Audio Copy (EAC) programme. This has many features which, if carefully configured, will ensure that your files are ripped as accurately as possible. Firstly, use the setup wizard to find the CD drive and configure it for optimal results,

making sure to select the 'I prefer to have accurate results' option This will ensure that EAC reads each data block multiple times in order to ensure that it has an accurate copy of the data.

Naturally, this is a slower process but, as you will only be ripping each file once, it is surely better to take a little longer in order to get the best results.

There are other EAC options which are worth mentioning. Error recovery quality may be set to the highest level, in spite of warnings about slowing down the extraction process. In practice it makes little difference. Using the drive configuration options, ensure that you use the detection feature in order to establish whether the drive supports 'accurate stream' and be sure to select the 'spin up drive before extraction' option as this will ensure that the beginning of each track is accurately ripped.

If speed reduction is allowed during extraction, this will ensure that, if serious errors are encountered, the drive will be slowed in order to get a better read. In the compression options section (one assumes that lossless FLAC will be used) it's a good idea to click on the test encoder button and then use the bit rate value that is returned, typically around 896 kBits. Selecting the delete WAV after compression will keep your folders tidy.

EAC uses the freedb database as standard for identifying files, but other options may be configured if preferred. With everything properly configured, EAC will take about twice as long to rip your files from CD than almost any other programme. However, the resulting files will be as accurate a representation as you could hope for. Having invested in a good quality digital audio player, it would seem churlish to feed it with anything less than the best



Store your digital files on a Network Attached Storage drive, a computer or a Digital Audio Player like the affordable and popular FiiO X3.

quality files that you can produce. In this context, files properly ripped with EAC are of a noticeably higher quality than those created with most other programmes.

However, one must take the time to configure everything just so and then be patient while the files are ripped. One may then be pleasantly surprised at just how good tracks from your CDs can sound on a good quality player with suitably good quality headphones. Who needs high res? Well, that is another story but, in the meantime, why not enjoy your carefully evolved CD collection on that shiny new DAP? The potential may surprise you. Kind regards,

Mark Douglas

Hi Mark. Thanks for that – wonderfully valuable info for all the rippers out there. By way of quick explanation for those wondering what this is all about, CD tracks often sound better after being ripped (copied) to a computer. They are subtly smoother and more fluid in progress – less edgy all round. How can this be so? The digital signal is re-timed during processing

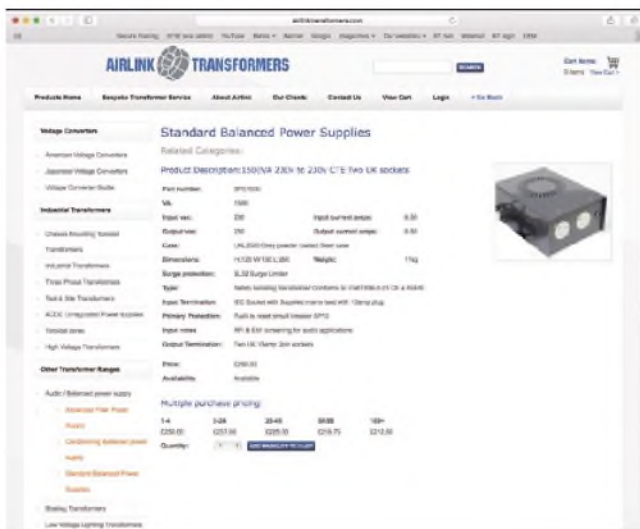
by jitter reduction routines, so it is in effect cleaned up. Jitter exists in many forms so its reduction has quite broad sonic influence. **NK**

A MATTER OF BALANCE

In Noel's reply to Mark Armitage's letter in January's issue you mention the benefits of a balanced power supply. About seven years ago I decided to invest in a balanced transformer for this purpose and purchased a BPS1500 from Airlink Transformers costing just over £180. This has the advantage of coming with a captive lead with a 13amp plug so you don't need an electrician to wire it in for you.

I plugged it in, plugged in a gang socket to one of its 13amp outputs and re-connected everything and there it is today. To say that the sound of my old NAD C350 was transformed (sorry) would be an understatement: the noise floor disappears and there is loads more detail and atmosphere to the sound, so much so that I have no intention of replacing the NAD until it packs up. I only wish I had done this before spending well over a thousand pounds upgrading cables.

The transformer is a 1.500 kVA



A balanced power supply from Airlink Transformers with mains filtering included. "The noise floor disappears and there is loads more detail and atmosphere to the sound" says Euan Grant.



The first FiiO X1 portable player – at £79 cheap enough to carry out and about, says John Malcolm.

toroidal affair so the case is quite small, measuring 20cm x 11cm x 28cm and weighing 11 kg. There is a faint audible hum within about 1 metre of the case but this is inaudible from a normal listening position.

I have a few questions concerning balanced supply: firstly is there any advantage for an a.c. synchronous motor? Secondly would it cause any issues with a valve amplifier? And finally, what happens if you connect a piece of equipment that has a built-in balanced power supply or, in other words, you piggyback two balanced power supplies?
Euan Grant

Hi Euan. Thanks for the information about Airlink Transformers' wide range of balanced power supplies for audio. In addition to the standard range, of which your BPS1500 (now £250) is a part, they also have 'Conditioning balanced power supplies' that have mains filtering on their input, and even Advanced Filter power supplies with uprated parts, copper foil screen etc, for around £650. Go to [http://www.airlinktransformers.com/Audio Balanced power supply](http://www.airlinktransformers.com/Audio%20Balanced%20power%20supply).

For readers unacquainted with this idea, it is a specially wound mains transformer with a split secondary having a centre tap that is grounded. This neutralises earth currents that arise from leakage, lowering noise in the audio equipment. It's a clever trick, often used for safety purposes in wet condition usage power tools since positive and negative lines each carry 115V instead of one carrying

230V – so you only get half a shock. In studios and with hi-fi equipment it has measurable impact I have found, reducing both hum and noise.

A transformer like this will not alter frequency, or lessen variation of frequency, in a mains supply, so in a major sense it will not affect a synchronous a.c. motor, but reduction of noise may well lessen flutter a tad since such motors are exposed to raw mains quality, unlike d.c. or Direct Drive motors fed from an internal electronic power supply.

It does not cause issues with valve amps and in fact is of more value here, since the high voltage differentials across the mains transformer in valve amps generates higher leakage currents.

You can piggy-back supplies but there is no benefit. **NK**

OUT AND ABOUT

You may think I'm mad (well, yes...) but although I already have a FiiO X3 2nd gen I've just ordered an old model X1 for £79 from Amazon. Why? Simple. My non-hi-res 2-or-3-years-old Sony MP3 player (which plays FLAC) had developed a noisy 3.5mm socket, and the shock of a sudden loud crackle is too much to take. Now why don't I use my X3 out and about? Well, because of its cost (expensive kit out in public - I

my headphones - so no loud sessions either, although with loud-talking idiots on mobiles or screaming children...

I wanted to wait for the review but four weeks is a long time to resist, especially when I've scanned Argos, Currys and the rest with nothing even remotely as good as the X1 coming to light, so needs must.

The other cost is of course my collection of microSD cards - plus the cost in time re-purchasing and re-filling them from hard disc if one gets lost/nicked. 128GB cards (of good speed for smooth playback of hi-res files) are not cheap enough to throw away just yet...

Yours sincerely
John Malcolm

Hi John, Well, you can read the review in this very issue! Having said that you won't find the older X1 disappointing – and at £79 it is a bargain. I use one when commuting on the Tube or bus and save my FiiO X5 for home use.

As for microSD cards, I've noticed prices are slowly coming down. I'm picking up brand name 128Gb cards for under £25. **JM**

Security of electronic devices, USB keys, door keys and passport on London's Tube is a bit of an issue. I once used cargo trousers, as



You can get hi-fi trousers from Travis Perkins, says Noel. They can carry a digital audio player and microSD cards inside secure zipped pockets and have knee pads for crawling around the floor.

don't know how you cope with worries about your A&K on the Tube, especially with London's impressive collection of occasional undead!) and it is wired up to my Q-DAC. So, basically, it's become a fixed component/source.

OK, so why don't I wait for your review of the new X1? Well, the old X1 is now down to £79 and it's going to be used on buses where the background noise is not suitable for audiophile-grade listening, along with me not wanting to disturb others with possible bleed from

they accommodate big screen phones, passports and travel docs easily, as well as my AKI20. However, miniature USB keys were mysteriously disappearing all the same.

To stop this my latest upgrade comes from Travis Perkins, the builders merchants, where their Scruffs Trade trousers have secure zipped pockets able to hold small items securely. They also have knee protectors – valuable when crawling

around the floor looking for the microUSB card that made a break for freedom.

Not for the fashion conscious I must admit, but more practical and durable than M&S or Primark kit. What the world needs is a hi-fi clothing store chain (Hi-mark?). **NK**

DIGITAL DILEMMA

Congratulations to Bear Family for producing the Arthur Crudup box set that was the subject of Paul Rigby's article in the December issue. It would be nice to think that Arthur gains more recognition and respect than he did in his lifetime. I saw him perform on tour over here in late 1969 or early 1970. He delivered a good acoustic performance but came across as a rather bitter man, having been cheated of dues for his songs that were recorded by Elvis.

At the time, I did not appreciate him enough as I was into the electric blues of Eric Clapton, Peter Green et al. It was later that I picked up several of his recordings and recognised his contribution to both blues and rock and roll.

I have, for two years, owned an iBasso DX50 portable player and have come to appreciate the benefits of digital storage, as well as hi-res digital formats. I like the sound quality, particularly with the Chord Mojo (which is a fantastic piece of kit), and the versatility of having a lot of music in one place.

I am now considering archiving my considerable CD (and, perhaps,

LP) collection to a non-portable installation and would like advice on the best options available. As a pensioner of limited means, I am more interested in best value as opposed to outright best. Simplicity of installation and operation would be a bonus.

C. Topping

Hi. For the most cost-effective solution to archiving CDs and high-resolution I'd recommend investing in a NAS drive connected wired or wirelessly to a network hub, typically a BT unit from which you source your internet.

Prices of NAS drives have plummeted recently so you'll get 2TB of storage (enough for more than 3000 CDs) for around £100. Simply rip them to your computer (I'd recommend in FLAC format) and then drag and drop them onto the NAS. This would also give you the opportunity to set-up a streaming system in the future if you so desired.

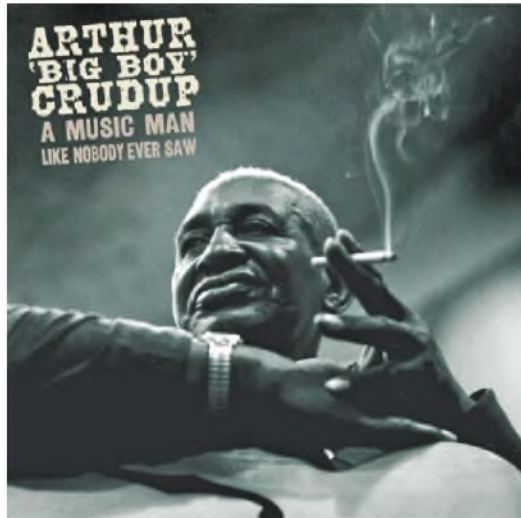
Alternatively (and slightly cheaper at £70 for 3TB) you could also simply buy an external hard disk drive to plug into your computer and transfer the ripped files or high-definition downloads to this.

Both solutions would allow you to switch the music on your iBasso player whenever you feel like it. **JM**

SPEAKER CABLES

I have, over the years of building up and changing my hi-fi, tried many different types of speaker cables from solid core to silver covered copper multi-strand and although I do hear differences I wondered what causes these differences? I, like you, read all the various marketing blurb from the audio cable companies and listen to different types but what actually causes those differences?

This got me thinking. Most companies that market multi-strand speaker cables promote the differences in the copper make up (OFHC, silver coated, differing thickness of strands for instance) and also state the different covering and how much effect it has. So allowing for all other factors to be the same, would we hear any difference to



Arthur Crudup "delivered a good acoustic performance but came across as a rather bitter man, having been cheated of dues for his songs that were recorded by Elvis" says C Topping.

the sound using cables with just different strand thicknesses? For example if thick strands gave better low frequency response but were not so good with the high frequencies and thin strands were good at high frequencies but not so great with low frequencies could we blend the wire strands to get a balanced sound?

Obviously, blending thick and thin wire strands in the same cable would be far harder to construct than just using the same strand thickness. And then there are other considerations, would the mixed strand cable operate better with a silver coating on the thin or thick strands? If then making a Bi-wire cable, could you have different strand/silver make up on the speaker ends for the high frequency and low frequency connections to the speakers. I have never seen a manufacturer stating this type of construction and wondered, do you know of any manufacturer that may have experimented with this type of construction and what the outcome was?

Every time I change my speakers and they are being run in (like now) I start thinking if I should look at a different speaker cable. I want my audio system to be balanced to my listening requirements and changing a component, even to improve a specific area of the sound, may mean I need to balance the new speakers to fit in with the overall sound I am looking for by adjusting the cables that feed it. I would be interested to know what your opinion is on speaker cables, their construction and the actual differences they make to the sound we hear.

Thank you
Andrew Burtchaeil



The iBasso DX50 portable digital audio player. "I like the sound quality, particularly with the Chord Mojo" says C Topping.



Loudspeaker cables act as aerials, picking up radio and TV when near to urban transmitters like Crystal Palace, London. Tannoy recommend the use of screened loudspeaker cables to prevent radio pickup, which now includes ever present wi-fi. Does screening improve sound quality as a result?

Hi Andrew. There is no doubt loudspeaker cables do make a difference – sometimes a very large one. However, there are many factors involved. Apart from the gauge of the conductors and their material, factors such as the solder (or lack of) used to attach the terminations, insulation and even the sheath enclosing the whole package can all have an effect.

Then there is the complicated relationship between the inductance/capacitance values of the cable and how that interacts with your amplifier (Naim, for example, once specified high inductance and low capacitance cables for their amps because of the way they were constructed - although that has changed recently).

Unfortunately the exact science as to how all this influences the sound is still not perfectly understood. Even some extremely experienced cable designers privately admit they do not have exact explanations as to the physics behind it all. If they did we would have the perfect cable!

As for finding the right one for your system, the only answer is to experiment. This is where good dealers come into their own as they'll often lend you a selection of cables to try at home before you decide which to buy. **JM**

There is little to show, in theory and measurement, that cables can possibly have any impact upon sound quality, when looked at in standard terms (lumped parameter electrical model).

However, this approach fails to take into account the possible impact of outside electrical interference.

If you use screened loudspeaker cables designed to resist such interference, as Tannoy recommend for example, do write in to tell us about your experiences. **NK**

BURN YOUR CABLE

I know that over the last year or so you have had great things to say about the FiiO X3ii, and you have recommended it a few times as a digital hi-fi source. I remember once you mentioned combining it with a Chord Mcjo for excellent results.



Connected to a FiiO X3 "there is a distinct lack of detail, sound-stage, bass and just general clarity and sharpness" from my Chord Mojo says John Dunne.

Well I have got both a FiiO X3ii and a Chord Mcjo and so I have tried to use both within my hi-fi setup. The FiiO sounds fine on its own through a pair of headphones and the Mcjo sounds fine from a CD player connected through an

optical cable. But used together they are really underwhelming. I even bought a Russ Andrews DV2 I digital cable with a mini jack to mini jack connection so as to avoid using adaptors, but with no improvement.

The main issue is just the quietness of the signal. I always use the Mcjo with the volume set to 'hifi output', which as you will know you can trigger at the point of switching on the device. However, as I say, the volume is fine when using the Mcjo with another source. When using the FiiO I have to turn the amp very high to get a decent volume which diminishes the quality. Overall there is a distinct lack of detail, soundstage, bass and just general clarity and sharpness. I can get a better sound from my phone streaming Deezer at MP3 quality to the Mcjo through a Chromecast Audio.

So what am I doing wrong? I have the FiiO set to coaxial output when I am using it in this way, and the other components in the system are an Arcam FMJA19 amp and Harbeth P3ES speakers. The Mcjo is connected to the amp through phono cables with a phono to mini jack adaptor on the DAC end. All the files played from the FiiO are FLAC ripped from CD.

I would be interested in how you are getting a good sound from your set up and, particularly, in what cables you are using. After all, shouldn't the digital signal be neutral in terms of volume, with the DAC output and the amp determining this?

Kind regards
John Dunne

Hi John. We all got confused about what you are doing here, as did Chord Electronics who suggested you go to your dealer. After much head scratching it would appear you



"I have done some serious burn in on the DV21 cable (well over a week non-stop), and it does now sound much better" says John Dunne.

are connecting the X3's analogue headphone output into the Mojo's front panel headphone output, using "a Russ Andrews DV21 digital cable with minijacks". This won't work!

The digital output of the FiiO X3 is a 3.5mm stereo jack that identified as Line/Coax Out – a confusing arrangement. You must select Coaxial out in the player, as I recall, to get digital onto this socket.

The digital input of the Mojo is also a 3.5mm socket marked COAX, so you are simply using the right cable inserted into the wrong sockets it would seem. **NK**

Hi Noel. Unfortunately that isn't the answer. I have been using the digital output on the right hand side of the X3, and it is set to the coaxial setting rather than line out; the connection was configured correctly.

However, since I wrote my letter I have done some serious burn in on the DV21 cable (well over a week non-stop), and it does now sound much better. Still not as forward and punchy as it does through headphones directly from the X3 but a lot better than it was. It appears that what Russ Andrews says about burn in is correct after all!

Kind regards

John Dunne

Ah, mystery solved then. Although we are close to Baker Street Sherlock Holmes isn't yet on our staff. We must do some more recruiting. **NK**

OLD FASHIONED QUALITY

The theme of this letter is very simple: why can we not replicate products

and quality levels that were once mass produced?

The two simplest and most puzzling examples in the realm of Hi-Fi are vinyl and thermionic valves.

Let's start with vinyl. I have just played the latest reissue of Pink Floyd's "Wish You Were Here". According to the sticker on the cover, this LP is produced from the original analog masters. Playing the song "Welcome to the machine" through my Transfi tangential arm plus Lyra Titan I (photo attached – plus Audio Note OTO SE amp and AN-J speaker), the vinyl appears extremely quiet (I did wet clean the record before playing it) and the music sounds clean, airy and sophisticated.

As multiple synth layers begin to overlap with various acoustic instruments – from drums, to bass, guitars and voices – the mix begins to lose clarity. Dynamic levels flatten and the space of each instrument becomes less and less defined: a very polite but confused amalgamation of sounds emerges. Inoffensive, but unexciting and slightly blurred.

Swapping records and playing an old copy of the same album, it takes almost no time to me and a friend (the designer of the wonderful Kerr and Smith speakers) to reach the same conclusion: clicks and pops aside, the old LP has more dynamics and clarity, with a spectacular ability to define a cathedral soundscape with perfectly etched instruments. In every sense the old LP beats the latest reissue hands down, sounding much more involving and like real music. This old LP was not a special audiophile pressing: it was the standard edition sold in millions of copies worldwide. Why today can we not make a special edition LP that sounds at least as good as an LP sourced from the same master and manufactured in volumes 30 years ago? Is it the lack of expertise or adequate machines in the current vinyl pressing industry? Or is it because today, even when analogue masters are used, a digitalisation step is unavoidable prior to going to press? And what is still wrong with analog-to-digital conversion in the XXI century for it to affect so badly the quality of sound of a vinyl reissue? Sadly, if we continue like this, in a few decades people will have no knowledge whatsoever of how good, involving and lifelike recorded music can sound.

Same story with thermionic valves: why can nobody make an exact replica

of a Mullard EL-84 (or CV2975) as produced in the Blackburn factory for decades – just to mention one example of a commonly used tube. Is there something missing today and preventing us from achieving the same electrical performance and sonic results? And what is missing: materials, equipment, expertise? As a person with a scientific technical education, I cannot believe that making valves was a black art or possibly more complicated than today's semi-conductor manufacturing.

One reason why it could not be a black art is the fact that many of those vintage valves had military applications, which require a reliable volume supply with high levels of ruggedness and batch-to-batch consistency. So why can nobody make an identically sounding copy of those wonderful vintage valves. Their layout and materials are in plain



Claudio Marinelli's hi-fi system. Playing Pink Floyd's Wish You Were Here, "the mix begins to lose clarity" he says.

sight for anyone to copy and yet none of the current Russian, Chinese or European copies sound even remotely similar to their ancestors.

I would appreciate your insight into the mysteries of falling vinyl and valves sound quality. As always, I look forward to reading your next issue and the mix of analog, digital, technical and subjective articles that your magazine delivers in such a balanced and thought provoking mix.

Claudio Marinelli

Thanks for that Claudio; your experiences mirror ours. Today's vinyl is quieter and 180gm LPs that usually lie fairly flat have a bit more oomph to their sound, as you might expect. But sometimes what is on them is disconcerting in its nature. Where you have a tale to tell about Pink Floyd, I recently bought a

new pressing of Fleetwood Mac's Rumours album and can't quite believe its sound.

This LP was needed for use in listening tests, to be played alongside our 24/96 hi-res digital transcriptions from what must have been an analogue master tape, Rumours being made at The Record Plant, California, 1977. At that point Fleetwood Mac were a top act with access to the best recording equipment and were renowned for their production quality. So the 24/96 transcription is pretty good, if a bit tizzy up top; by way of contrast the LP has a most peculiar muffled sound, as if the band were singing inside a shoebox. Heaven knows how this occurred. It's disconcerting that no one seems to have made any quality judgements about what was being re-pressed, our experience mirroring yours.

This brings us to a peculiar dichotomy between the hi-fi business and the music business. Music professionals should make some attempt to replay their work through a representative consumer audio system, one able to reveal imperfections of the sort you and I and so many others plainly hear – but they don't. In fact, consumer audio is sneered at I find: big studio monitors are the order of the day, played at absurd levels where hearing damage sets in after 10 minutes or so (98dB). And don't ever ask any studio mastering for vinyl what turntable they use: there is no understanding of this subject at all.

Add in a similar lack of understanding about the difficulty of turning analogue to digital, the impact of distortion and dissonant quantisation noise and even the quality degradation imposed by multiple format changes during mastering and you end up with the right royal mess we are again being faced with on modern LPs. Some are very good, many disconcertingly bad.

As you say, too many are derived from old digital copy masters of what is considered, by today's standards, appalling digital audio quality. Remember, once upon a time dodgy 16bit digital ADCs were by inference 'perfect', because digital was 'perfect'. I know from first hand experience speaking to studio engineers at the time this was their simple and sincere belief even though, when these recordings were played they quite obviously sounded harsh and dynamically dead (e.g. Led Zeppelin II on CD).

Happily, there are audiophile artists around who understand what you have to do to retain quality and I'm told Jimmy Page of Led Zeppelin is one who now intervenes in all aspects of album production, perhaps after hearing the Led Zeppelin II CD! Mark Knopfler is another perfectionist and it shows in his albums, and of course Neil Young is very vocal about it all. So all is not lost, but the music business has catapulted eager buyers back to the sort of quality issues that we all hoped were no more with the birth of audiophile vinyl.

Since you are technical I think you will appreciate that I was recently told by Rob Watts, designer of Chord Electronics unique WTA DACs, that he is working on a new super ADC because current designs are inadequate. ESS were also claiming on their website they had a super ADC, until recently when all mention disappeared.

So in other words, current commercial ADC chips are inadequate for audio we might speculate – where does that put us! Yet more re-masters and re-issues?

I think what Rob was saying is that current DACs outperform ADCs by a significant margin so in the conversion to digital and back out again, it is the ADC that is the limiting factor. Since these inadequate ADCs are buried in digital recording equipment you can get a sense of the difficulty we are all facing here, including those in the music biz who don't 'see' the ADC in the shiny new and very expensive box they bought. They just know it cost them a lot and it is 'perfect'.

The issue of valve quality is interesting – and very different to that of vinyl. Sort of. Both are dependent upon old technologies being updated to meet today's standards. But also it was Eastern Europe, Russia and China that kept outdated valve manufacturing plants open, to service their need for them – and quality was often dreadful. We



Valve production at Mullard's Blackburn factory, carried out by dextrous female hands in clean conditions. Picture courtesy of www.mullardmagic.co.uk/Blog, where there is more on Mullard and technology of the time.

(World Audio Design) once rejected a whole batch of East European KT88s that started to fail in the field: they worked but only for a short time, likely because the vacuum was inadequate due to old, leaky pumping equipment, or getters that didn't ignite.

This sort of variability also affected material quality and internal electrode clearances. With the latter, as the valve heated and cooled repeatedly a time would come when the high voltage anode would touch a grid and – bang! So the problem is one of poor manufacturing quality in old, worn out factories. British Mullard plants existed in a time when, as you say, there was military as well as consumer demand – and money in the business to meet exactly high standards.

Renewed interest worldwide in valve guitar amplifiers as well as audio valve amps – notably in USA, Germany and Japan – has re-energized these old and dying plants and, after the not so impressive (at least, the samples I have heard) KT90s and KT120s, we now have the superb KT150, an all-new Russian power valve that you may like to hear. It has the silkiness of a 300B, but huge power dissipation, enough to put real muscle into modern valve amps.

Readers may well like to tell us of their experiences with new vinyl albums so we all know better what is going on out there. **NK**

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X1 EXTRA

Noel Keywood reviews FiiO's latest X1 portable digital audio player – and finds it gives you more, for less.

Gentlemen, set fire to your engines. When you do, FiiO's new X1 will switch on, they say. I didn't try to "ignite" my car's engine – as advised on their website – to find out but I did try out the rest of this new budget player – and came away impressed.

The X1 2nd Gen as it is called is small, light and at just £100 will not stretch anyone's budget. This new portable, digital audio player (DAP) will likely be as popular as the first X1 by offering a financially painless way into high quality audio on the move. I use the Astell&Kern AK120 player in my pocket as a hi-res CD player so have a particular view on DAPs. The X1 2nd Gen didn't meet my requirements – but boy was it good at the price. Here's a lovely, if limited player.

The tiny X1 is top-pocketable: yes, like Astell&Kern's original AK100, the X1 2nd Gen is small and light enough to fit a shirt pocket, measuring 55mm wide, 97mm high and 12mm deep. On our scales weight came in at 111gms, where 180-220 gms is

common. It will drive one pair of headphones, into which it can deliver a healthy 1.5V measurement showed – and this is more than enough to go very loud. One fifth as much was once a common maximum, to prevent hearing damage, but these days esoteric headphone designs are appearing that are insensitive and need more (Oppo and Audeze magnetic planars); the X1 drove my Oppo PM1s easily.

The headphone socket doubles as a Line output, fixing volume to maximum (1.5V); an external volume control then provides signal attenuation. This means the X1 provides less volume than a CD player (2V) but technically this is no big issue – just turn amplifier volume up. Note that the headphone port is on the bottom of the player, not the top as is usual – not something I see as especially convenient, especially for shirt pocket use.

A microUSB port provides a charging and file loading connection, through the usual microUSB2 to USB2 Type A plug – cable supplied. A menu option switches this from file loading (mass storage) to operation with a car system (In-Vehicle mode), but this only switches the player on and off; it doesn't send music to the car's audio system. To do that, FiiO say, connect the player's analogue line out to the car's analogue line in, assuming it has one.

Or use wireless Bluetooth, since the new X1 has this also. If your



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headphone amp on this player and measurement showed they have been flawlessly applied.

car has it, then it might work. One user on the FiiO website said this did not work but I paired our player with an Audiolab M-ONE amplifier successfully. aptX compression is not used at present but may come later, FiiO say.

As with the previous X1 there is no digital output – and this is where I pass. For home and office use I need a digital output to link into a hi-fi DAC so the portable can be used as a high-resolution CD player in effect. If you want this, then an X3 is the way to go perhaps.

An on-off switch and rocker style volume control complete the control complement. Switch on measured 18 seconds – quite quick.

There is no on-board memory: a microSD card up to 256GB is supported and must be bought separately; FiiO recommend SanDisk. It must be FAT32 formatted, which the player can do on-board. I updated Firmware V1 to V1.3.3 easily and quickly – and with a Mac no less. This surprised me because Mac desktop files often frustrate the process – and the X1 does not hide their presence when music is uploaded, an annoying inability because unplayable files preceded by an underscore litter the music file list as a result. Best to upload from a PC to avoid this.

The X1 always was easy to use and it remains so. Although the 2in screen is a bit small and none too high in resolution at 320x240 pixels it is readable (text size can be altered). There's an equaliser and plenty to fiddle with if you are so inclined; I run players in vanilla form.

I was surprised to find that Apple losslessly compressed files (ALAC) are handled but not Apple Interchange File Format (aiff) files, a peculiar omission that may well be down to licensing problems/costs. Otherwise, the X1 plays all common file types up to 24/192 but not DSD – as you might expect at the price.

Play time is quoted as 12hours from the 1800mAh internal rechargeable battery.

SOUND QUALITY

FiiO use a Texas Instruments PCM5242 DAC and Intersil ISL2829 I

Sound quality of budget players like this does not usually wow me, the original X1 sounding smooth and mild, but not as punchy as more expensive players. FiiO have done something about this because I was surprised to be immediately impressed by the sound of the X1 2nd Gen. It now has strong and tuneful bass with considerably more punch and depth to it than I remember when playing my usual Rock test tracks including The Eagles, where the bass line behind 'Busy Being Fabulous' jumped forward in the mix and gained an extra octave of downward extension. Together with a smooth and open midband and quite sparkly upper treble (Philips Fidelio X1 phones) this was as good as I have heard from what is a CD rip.

With higher resolution rock such as Fleetwood Mac's 'Dreams' (24/96), Mick Fleetwood's opening drum roll was fast, well-defined and punchy. Fine strumming had guitar strings

sounding delicate and well-resolved in the left and right earpieces. And the bass line was easy to follow – due to lack of wallcw!

With classical the X1 had great presence with large-scale performances like 'Mars' from Holst's The Planets. The stage was wide and kettle drums thunderous, making the centre of my head reel from their impact.

With a good sense of air and space around the orchestra I think no-one would come away anything other than impressed by this little player. I was quite taken back.

CONCLUSION

The new X1 2nd Gen is a great little player. The user interface is readable and does its job well enough. Firmware upgrade was a doddle – unusual.

Sound quality was superb and the player's underlying engineering flawless. It has niggling limitations, Mac desktop file presence being unnecessary, since it is fixable in software. This apart the X1 2nd Gen is still a great way into high-quality portable music playing, providing you don't want a wired high-resolution digital output.

MEASURED PERFORMANCE

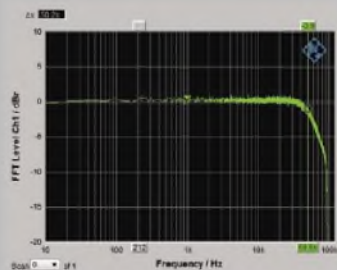
Frequency response of the FiiO X1 2nd Gen measured flat to 52kHz (-1dB) with a 192kHz sample rate digital signal, so it has plenty of analogue bandwidth, and it is flat across the audio band as our analysis shows.

Output measured 1.5V, more than enough to drive even insensitive headphones loud. Line output was identical to Headphone; the volume control is bypassed.

Distortion was very low at 0.05% (24bit, -60dB) and our analysis shows a lack of noise and distortion components – an unusually good result for any portable player, let alone a budget one. As a direct result the all-important dynamic range value measured 112dB, little less than Texas Instruments quote for their DAC (114dB) so the little X1 exploits this chip well.

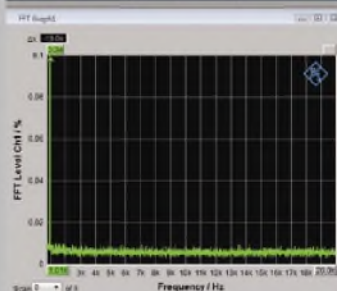
The X1 2nd Gen measured very well in all areas and was surprisingly strong in critical ones such as distortion and dynamic range, suggesting very good sound quality. **NK**

FREQUENCY RESPONSE



DISTORTION

THD at 0dB	Level (dB)	Frequency
0.0484 %	1.5603 mV	997.02 Hz
OFF	OFF	OFF



Frequency response (-1dB) CD	6Hz-52kHz
Distortion 0dB -60dB	24bit 0.003% 0.05%
Separation (1kHz) Noise (IEC A) Dynamic range Output	92dB -113dB 112dB 1.5V

FiiO X1 2ND GEN £100



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT
Top quality sound at a minuscule price. Small and simple too. Excellent.

FOR
- small and light
- punchy sound
- low, low price

AGAINST
- no digital output
- shows Mac desktop files
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Go Deeper



Supreme Performance

QED's new flagship Supremus loudspeaker cable is a stellar performer, says Jon Myles.

QED can rightly lay claim to changing the way people thought about the importance of interconnects in their systems with the introduction of its 79-strand loudspeaker cable way back in 1978.

Before then there was a sense of any old bell wire will do – no matter what level of equipment you were using. In the succeeding years, of course, the cable industry has exploded with some cables now costing many hundreds of pounds a metre.

QED still produces the 79-strand (you can buy a 3 metre terminated pair for less than £55) which is a testament to the longevity of its design. Its range now also includes some more sophisticated designs - but its reputation for outstanding performance at value-for-money prices remains.

So when the company produces a new flagship 'speaker cable aimed at taking on rivals costing many times more you tend to sit up and take notice.

It's called Supremus, costs £150 a metre and arrives in a high-quality box with an individual guarantee bearing your name.

However, even more impressive is the construction. Supremus uses two bundles of 16 silver-plated oxygen-free copper conductors in a 6.2mm² cross-sectional area. These have also been cryogenically treated to improve conductivity and enhance durability.

The individual conductors are individually insulated by a thin layer of enamel while QED's proprietary Aircore technology is said to keep inductance and capacitance at low levels. In addition specially-designed rhodium-plated terminations are cold-welded to the cables. These have a clever locking design to ensure

maximum surface contact between the plug and terminals.

The construction means the Supremus is a little larger and heavier than some other cables but it is still flexible enough to get round corners. The locking pins are also not just easy to use but provide one of the firmest fits I've yet come across.

SOUND QUALITY

All cables sound different. But the best add as little of their own character as possible to the system so you can hear the essential qualities of the amplifier and loudspeakers.

That is just what the Supremus does. Fitted between a Naim NAP 250 DR amplifier and a pair of Spondor D7 loudspeakers they had the ability to open up the soundstage by extending each end of the frequency spectrum.

Bass – always impressive via the Naim/Spondor combination – took on a deeper, more tactile quality. The low-end on Tim Hagans' 'Animation/Imagination' melding of jazz and drum 'n' bass seemed to gain an extra octave. Meanwhile, his trumpet sounded crisper, cleaner and devoid of any artificial sheen.

On Janos Starker's forceful performance of Brahms' Cello Sonata

No. 1 his bow work was vibrant, resonance of the instrument shining through, while Gyorgy Sebok's piano had a lifelike quality to it.

There's was a sense that the QED cables were letting the individual components show what they could do with no restriction. It was the same when they were paired with the more expensive McIntosh MC152 power amplifier where they relayed the gloriously smooth yet powerful qualities of this unit.

With a 24/96 file of the live 'Rank' album by The Smiths the applause of the crowd lost its blurred quality and had a crackle, accentuating the sense of concert liveliness. I've heard other cables do this – but they have cost significantly more than the Supremus.

All of which makes the QEDs something of a bargain in the high-end cable stakes.

CONCLUSION

Superbly constructed and intelligently engineered, these loudspeaker cables are a new reference in the QED range. They'll bring the best out of your equipment at a price that belies their ability.



**QED SUPREMUS
£150 PER METRE**



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AGAINST

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The UK's most iconic turntable, the legendary Sonda goes from strength to strength. New Keel sub-chassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

MICHELL GYRO DEC £1700
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



PRO-JECT ESSENTIAL DIGITAL £300
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LP to your laptop.



REGA RP3 £550
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding RB303 tonearm, suitable for MM and MC cartridges. A standard at the price point.

TIMESTEP EVO £2100
The famous Technics SL-1210 MM Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



TONEARMS

ORIGIN LIVE ENCOUNTER MK3C £1,745
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

HADCOCK GH-242 EXPORT £810
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

ORIGIN LIVE ONYX £450
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



REGA RB303 £300
A one-piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC Reference quality for peanuts.

SME 312S £1,600
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



SME 309 £1500
A one-piece tapered 9in arm finished like a camera and slick to use. Superlative SME quality and sound at affordable price.

SME V £3000
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets.

CARTRIDGES

AUDIO TECHNICA AT-OC9 MLIII MC £420
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



AUDIO TECHNICA AT-F3/III MC £150
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

BENZ MICRO ACE SL MC £595
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

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

DENON DL-103 £180
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value.



LYRA TITAN I MC £3,500
Breathtaking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



ORTOFON 2M MONO SE MM £80
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



ORTOFON 2M BLACK MM £400
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

ORTOFON CADENZA BRONZE MC £1,400
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



ORTOFON CADENZA BLACK MC £1,800
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

ORTOFON A95 MC £3,750
Fast and extremely detailed, this is an MC cartridge that sets standards.

REGA CARBON MM £35
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



GOLDRING 1012GX MM £250
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



SHURE M97XF £80
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor.

VAN DEN HUL DDT-II SPECIAL MC £995
Long-established cartridge from Holland with an open and dynamic sound.

PHONO PREAMPS

CAMBRIDGE AUDIO 651P £200
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

ICON AUDIO PS3 MKII £1,200
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



IFI IPHONO £350
Multi EQ phono stage from British manufacturer that punches well above its weight. Substantial bass and open midband.



LEEMA ACOUSTICS ELEMENTS ULTRA £1,199
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money



PRO-JECT TUBE BOX DS £425
Compact MM and MC phono stage with valve output circuit and a big sound.



QUAD QC24P £995
MM and MC, oodles of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

TIMESTEP T-01MC £995
New, minimalist phono stage that sonically punches well above its weight.

PREAMPLIFIERS

ICON AUDIO LA-4 MKIII £1,300
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



MF AUDIO CLASSIC SILVER £4,500
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

MING DA MD7-SE £1,520
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



INTEGRATED AMPLIFIERS

ARIAND PRO845SE £1,499
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet forcefully dynamic at the same time.



AUDIO RESEARCH VS160 £3,500
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



CAMBRIDGE AUDIO AZUR 651A £350
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

CREEK EVOLUTION 100A £1,500
Superb build and smooth confident sound make this powerful amplifier a benchmark.



CYRUS 8DAC £1,400
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

EXPOSURE 1010 £495
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



ICON AUDIO STEREO 60 MKIII £1,700
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



NAIM NAIT 5Si £925
Naim's famed entry-level integrated amplifier is updated to Si status. Demos Naim's superbly muscular sound at entry level.

SUGDEN A21SE £2,480
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



POWER AMPLIFIERS

AUDIO RESEARCH VS175 £7,498
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

AUDIO RESEARCH VS115 £5,000
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

ICON AUDIO MB845 MKII £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.



ICON AUDIO MB81 £10,000
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

MCINTOSH MC-152 £4,995
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



QUAD ELITE QMP MONOBLOCKS £2400 PR
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

QUAD II-EIGHTY MONOBLOCKS £6,000 PR
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



LOUDSPEAKER FLOORSTANDER

B&W 803 D3 £12,500
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

CASTLE AVON V £1,600
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



EMINENT TECHNOLOGY LFT-8B £2,500
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

EPOS K2 £1,000
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

FOCAL ARIA 926 £1,400
Simple, clean, neutral sound – easy going but well engineered and affordable.

MARTIN LOGAN SUMMIT X £16,698
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



MARTIN LOGAN ELECTROMOTION £2,500
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



QUADRAL CHROMIUM STYLE 8 £1,700
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

QUADRAL ORKAN VIII AKTIVS £6,200
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



Q ACOUSTICS 2050i £480
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

SPENDOR SP100 R2 £6,495
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



SPENDOR A3 £1,300
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

TANNOY DEFINITION DC10 Ti £6,000
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



TANNOY KENSINGTON £9,950
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



LOUDSPEAKERS STANDMOUNT

ACOUSTIC ENERGY NEO 1 V2 £225
Civilised sounding speaker with fast and tuneful bass.

ACOUSTIC ENERGY AE1 CLASSIC £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



ELAC BS243 £1,000
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



EMINENT TECHNOLOGY LFT-16A £1,200
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

WHARFEDALE DIAMOND 220 £200
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



KEF LS50 £800
Supremely musical mini-monitors which sound much bigger than they look.



MARTIN LOGAN MOTION 35 £1,300
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



PMC TWENTY.21 £1,575
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



Q ACOUSTICS 2020i £165
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

WHARFEDALE DENTON £500
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



HEADPHONE AMPLIFIERS

CREEK OBH11 £150
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

CHORD MOJO £399
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



EPIPHANY EHP-02 £99
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



ICON AUDIO HP8 MKII £650
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



FIDELITY AUDIO HPA 100 £350
Great little headphone amplifier with a lively yet refined and open sound.

MUSIC FIRST PHONE BOX £276
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



OPPO HA-2 £250
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.



CD PLAYERS

AUDIOLAB 8200CDQ £949
Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



CANOR CD2+ £3,100
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



CAMBRIDGE AUDIO AZUR 651C £410
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

CHORD RED REFERENCE MKIII £16,000
A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



ESOTERIC K-03 £9,495
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



EXPOSURE 101 £395
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

ELECTROCOMPANIET EMP-1/S £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.



OPPO BDP-105D £1200

Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



REGA APOLLO-R £550

Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.

ROKSAN KANDY K2 £900

A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.



TUNERS

CAMBRIDGE AUDIO AZUR 651T £299

Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



CREEK DESTINY 2 £550

Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



MAGNUM DYNALAB MD-90T £1,900

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



DACS

AUDIOLAB M-DAC £600

Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



AUDIOLAB Q-DAC £250

Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.

ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095

DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



CHORD 2QUTE HD £990

Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



DCS DEBUSSY £8,000

DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.

NORTHERN FIDELITY DAC £650

Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



METRUM OCTAVE £729

Unique two-box digital-to-analogue converter with great sound at a great price. Cuts upper treble, though.

NAIM DAC £2,400

Superb high-end digital converter with a probing, punchy and forensically-detailed sound.



TEAC UD-501 £699

Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



RESONESSENCE INVICTA MIRUS £4,499

One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



NETWORK PLAYERS

CHORD DSX100 £7,500

Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



CAMBRIDGE AUDIO NP30 £399

Budget offering from Cambridge offers a great introduction to network streaming.

CYRUS STREAM X £1,400

Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



ENTOTEM PLATO £2999.00

A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



NAIM NDX £2,995

Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

NAIM ND5XS £2,175

Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

NAIM NAC-N172 XS £1,650

A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



PRO-JECT STREAM BOX RS £1,095

Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

QUAD PLATINUM DMP £2,500

Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



DIGITAL SOURCES

ASTEEL&KERN AK100 MKII £569

Portable high-definition digital player with superb sound quality. Punchy and fast.



FiiO X3 £150

Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

LOT00 PAW GOLD £1,500

Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



NAIM HDX £4,405

Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

NAIM UNITILITE £1,995

A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



PORTABLE SPEAKERS

BAYAN SOUNDBOOK £149.99

Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



IRIVER IBA-50 £69

Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

CABLES

BLACK RHODIUM TWIST £71/3M

Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



MAINS CABLES R US NO.27 £95

Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



CHORD SIGNATURE REFERENCE £900

Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



TELLURIUM Q BLACK 280/3M

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

TELLURIUM Q SILVER DIAMOND £804/M

An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



HEADPHONES

AUDEZE LCD-3 £1,725

A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



B&W P3 £170

Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

JAYS V-JAYS £49

Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



NOBLE K10 £1,279

Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



OPPO PM-1 £950

Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.



SENNHEISER HD700 £599

Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.



YAMAHA HPH-MT220 £150

Purposed for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.



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HiFi	SME CONNECT	STRAIGHT TONEARM	ANTI SKATING	PHONO & LINE OUTPUT	PIANO FINISH	LOW VIBRATION	DC MOTOR
AUTO STOP	PHONO STAGE	THREE SPEEDS 33/45/78	ALU RUBBER PLATTER	USB REC INTERFACE	GOLDEN CONNECTION	PC WIN	MAC OS



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Radio days

Martin Pipe explores the heyday of radio – and the beginnings of hi-fi as we know it.

In 2016, it's hard to realise the impact that 'steam' AM radio (or 'the wireless') had in the 1930s and 1940s. In these consumer-friendly times of multiple competing distractions, radio is commonly treated as 'aural wallpaper' – a comforting source of sound, a background to our everyday activities. But radio, the first fruit of the industry that would become known as 'electronics', was the 'Internet' of its era, and arguably an early example of globalisation



Ekco AD65 AC/DC superhet radio, introduced 1934, a classic built of Bakelite.

through new technology. After all, conditions permitting, you could tune into radio stations all over the world. Radio gave many their first taste of an unfamiliar language, entertained them with drama and vaudeville, kept them informed about the world via regular news bulletins, and educated them with talks and features. Schools programmes were introduced, while the spiritual needs of the population were addressed with religious services.

Then there were the 'outside broadcasts' (OBs), most notably royal occasions and sporting events like the Boat Race, Ascot, the FA Cup Final, boxing matches and Wimbledon.

Across the Atlantic, baseball, American football, 'soap operas' and gameshows were popular draws. But of highest importance to the average listener was music. For the

first time, you could experience a live symphony concert or a dance band without leaving your home. After all, the effects of the Great Depression meant that a 'night out' at a concert was too expensive for many. And, thanks to its global reach, exotic sounds as diverse as the Indian sitar, Hungarian tzigane music, opera live from Italy, Icelandic weather-forecasts, non-native wildlife and propaganda speeches were vying for attention.

UK listeners were served primarily by the BBC. 'Auntie' – and its mission to 'inform, educate and entertain' – began in 1922 as a private monopoly supported by the radio industry and financed by licences on radio patents.

Incorporated by Royal Charter in 1926, the BBC's experimental hotch-potch of infrastructure was reorganised into National and Regional stations of different content. The National tended to concentrate on classical music and serious matters, while the Regional catered for dance and 'light' music.

National was transmitted by high-power long-wave transmitters built at Daventry and Brookmans Park. Later that year was added – for worldwide shortwave listeners – an Empire Service (which evolved into the World Service).

During World War 2, the BBC's Regional and National output were merged into the 'Home Service', frequencies were reorganised to prevent transmitters from being used by the enemy to guide bombers to their targets and a 'Forces' programme was established to entertain troops. The latter was



Positioned on Borough Hill, the BBC's Daventry transmission station has at various times radiated long-wave, medium-wave and short-wave broadcasts since it started operations in 1925.

carried by short-wave transmitters, so that it stood a better chance of being heard where the fighting was taking place. Its reception in other countries gave the BBC propaganda value.

Post-war, the Home Service



UK listeners had to buy radio licences to fund the BBC, even if they listened exclusively to overseas broadcasters.

was joined by the Forces-derived 'Light' and the all-new cultural 'Third Programme', with its internationally-respected classical-music focus. All you needed to enjoy such variety was a radio set, and – in the UK – the licence fee that paid for the corporation. Being funded by listeners (albeit involuntarily) helped to ensure the BBC's impartiality, and



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this 'public service' model was seen as preferable to alternatives like advertising support or outright state control.

But what of the mass-market for UK radio? Simple crystal sets and their 'cat's whiskers' were, by the thirties, experiments for curious schoolboys while the first valved radios – intimidating mid-1920s tuned-radio frequency (TRF) sets playing through headphones or tinny horn speakers were available but outdated.

Most of the new sets aimed at the 'popular' end of the 1930s market were of a 3- or 4-valve design, with a family-friendly paper-coned loudspeaker. They covered the key medium-wave and long wave broadcast bands. Short-wave reception (long distance) was a feature of more upmarket sets.

UK mains supplies hadn't been standardised and – depending on location – you might have been served by AC or DC. Voltages varied widely, too. A radio had to be compatible with the local supply, although you could also purchase AC/DC sets using resistances rather than AC-only transformers to drop the mains voltage.

Then there were 'battery' sets intended for portable use or areas without a mains supply. They needed a low-current 'HT' (high tension) battery of 100V or so and a higher-current lead-acid LT battery to light the valve filaments. The latter had to be recharged periodically; a job that radio shops, garages and cycle dealers (the beginnings of the famous Currys high-street chain) would do for you. When a mains supply came to your street, you could adapt an existing set with a 'battery eliminator'.

Straight radios (TRFs) had a 'reaction' control that influenced the reception performance of the set through a process known as 'regeneration'. If improperly used it could turn a receiver into a low-powered transmitter that spoilt neighbourhood reception.

By the mid-1930s the straight set had given way to the 'superheterodyne'. This didn't suffer from the regeneration problem. In a 'superhet', all incoming radio signals were converted (or 'changed') to a 'intermediate' frequency (IF). The IF could be precisely band-pass filtered to achieve good selectivity, before the processes of audio recovery and amplification took place. They had enough gain to bring in weak stations.

For high-powered stations, like the BBC National and Regional services in the UK, it was often argued that a TRF design gave the most satisfying results.

A superhet's amplifier could be driven by a gramophone pick-up attached via rear-panel terminals. You could, with a 'playing desk', turn your 'wireless' into a radiogram – which was as aspirational a 1930s acquisition as a motor car!

An external 'extension' speaker often featured too. They were provided so that listening could be enjoyed around the house. Some people installed multiple extension-sockets, hiding the cables under floorboards. Such was the draw of radio back then.

It was often felt that 'extensions' sounded better than the radio's own speaker. This led to a quest for better audio, and it's interesting to note that even in the 1930s the importance of room-acoustics was appreciated. Ideas like electrostatic speakers, better reproduction from records, FM radio, high-power push-pull amplifiers, noise reduction, dynamic range expansion and electronic crossovers driving multiple speakers tailored for the reproduction of specific frequency bands were all pioneered in the 1930s!

Radio sets had, until the mid-1930s, been incorporated into wooden enclosures built by craftsmen. These delightful art-deco constructions with their eye-catching marquetry still appeal today, but were expensive to produce. To bring down manufacturing costs, cases built from a new breed of synthetic materials that could be moulded were introduced; mass-production was thus possible. In the UK, the Southend radio giant Ekco led the way with cabinets formed out of Bakelite. Philips, Bush, HMV and (in the US) Motorola also adopted Bakelite.

One 'no-frills' UK set was however housed in an appropriately-austere wooden cabinet. This was the 'utility' set, introduced in 1944. Also known as the 'wartime civilian

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Celestion started life as an Ipswich-based radio loudspeaker manufacturer in 1924. It also marketed its transducer 'chassis' in exquisitely-finished cabinets as 'extension loudspeakers'. An extension speaker offered a performance superior to the one built into the radio itself. This led to interest in improved audio, and the beginnings of hi-fi.

receiver, the MW-only 4-valve superhet was produced by over 40 different manufacturers to a design prepared by the revered firm Murphy Radio. AC and DC versions were sold.

Some of the Bakelite and Catalin (US) sets have become design icons, and ironically fetch higher prices than the more sophisticated wooden-encased 'all-wave' (i.e. long/medium/short) sets that were placed higher up some of the manufacturers' ranges! But at the time, these synthetic cabinets brought radio within the reach of more families. Ekco's iconic AD65, a round Bakelite MW/LW superhet with stations marked on a large semi-circular dial launched in 1934, sold for £11 0s 6d. At that time, the average UK wage was £190 a year; a AD65 could thus be theirs for around three week's wages. Reflecting the state of the electricity industry at that time, the AD65 was suitable for both AC and DC mains. Meanwhile in the mid-1930s US, a Catalin-encased Emerson AU-190 superhet sold for \$25 – a mere week's wages for a typical worker, given that the average salary was then around \$1400.

Next month: luxury radio, experimentation and interest in hi-fi



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Full Force 9



Quadral's new Aurum Galan 9 standmount offers potent performance, says Jon Myles.

Not so many months ago I spent an enjoyable few weeks in the company of a pair of Quadral Megan VIII standmount loudspeakers during an extended listening session for a potential review.

They were a joy to listen to, combining a sumptuous mid-range with extended high frequencies and a fast bass response.

Unfortunately the model was also coming to the end of its life

so the review was inevitably spiked (there's no point writing about models you can no longer buy).

However, the good news now is the Megan's replacement has finally arrived and it holds out the promise of being even better than its predecessor.

The new Galan 9 is the smallest member of German manufacturer Quadral's up-market Aurum series – being a two-way bass reflex standmount measuring 21cm x 33cm x 29cm (H/W/D).

The cabinet features chamfered edges on the fascia to aid sound dispersion with metallic rubber-tipped feet to anchor them on stands.

But it's the drive units that really catch the eye and the ear. Quadral have fitted their latest aluminium ribbon tweeter allied to a 155mm bass/mid driver. Twin loudspeaker binding posts at the rear allow for bi-wiring if wanted but also come connected with proper jumper leads as opposed to the metal links that can degrade sound.

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GETTING TO THE SHOW

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BY CAR: From the M4 take J19 (M32 - Bristol). Follow signs for City Centre and RAC signs to the Show. For those using satellite navigation systems the hotel post code is BS1 3AD. Easy local parking in Cabot Circus car park and Broadmead and Bond Street NCPs.



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WHAT HI-FI?

One other interesting feature is the addition of a switch on the back to cut treble lift from the tweeter. Two settings are available labelled +/- and they do make a difference (see Measured Performance for details).

Apart from that these new Quadral's are available in a variety of finishes with Oiled Walnut and High Gloss or White costing £2000 while Piano Black or White comes in at £2200. A custom individual lacquer option is also offered at £2400.

It's a classy-looking package with the sort of quality fit and finish that has been a hallmark of Quadral's products for many years now.

SOUND QUALITY

As I mentioned at the start, I enjoyed the previous Megan VIII model but the Galan 9 takes that performance and improves on it.

Located on a firm pair of stands and driven by our reference McIntosh MC152 amplifier the Aurums immediately summoned up a clean, open soundstage.

As with many ribbon tweeter-equipped speakers the treble is fast and extended but it's not harsh or searing – just nicely judged to give the impression of detail.

Playing Tommy Smith's 'Dialogue Of The Insects' the saxophone was sharply defined with good metallic

timbre while its image was projected well forward of the loudspeakers.

Underneath the rhythm section had solidity, bass being firm and propulsive with the drums having a good crack to them.

Switching to the more abrasive sounds of Oasis's debut 'Definitely Maybe' the treble was again well to the fore. Noel Gallagher's searing guitar notes on the opening 'Rock 'N' Roll Star' rang out with all the necessary energy.

This was with the treble switch set to its lowest level (-). Moving to the + setting gave an appreciable boost to the high-end that was just a little too much for my tastes. That said, it's a nice option to have and is very much a matter of taste.

At the other end of the spectrum bass was firm and impactful with a nice bouncy quality to it which helped push up-tempo songs such as New Order's 'Age Of Consent' along with the correct tempo.

Obviously, as in any standmount loudspeaker of this size, you don't get wall-shaking sub-sonics. The very bottom octaves of James Blake's 'Limit To Your Love' were missing but the Aurums didn't rob the track of any of its power.

Impressively there's excellent integration between the tweeter and mid/bass driver – a quality not all



The rear panel includes a treble lift switch above the twin 'speaker binding posts – that come with high-quality cable jumpers for single-wire operation.

ribbon-equipped models display. That means there's no evidence of midband suck out, the lack of which gives excellent detailing on dense tracks.

CONCLUSION

The Galan 9s have a sophisticated sound that is fast, detailed and accurate. They're a lovely loudspeaker to hear. Try to get an audition if you want a superb sound from a small 'speaker.

MEASURED PERFORMANCE

Our frequency response analysis of the Galan 9 shows it extends from 50Hz to 15kHz and is basically flat, with no large variations over what is almost the entire audio band. With treble level set at + however, treble does lift above the rest of the audio band by around +2dB – enough to make the speaker sound quite obviously bright and forward up top.

Setting the treble level switch to reduce output (-) brought treble level down, as shown in the white trace. Treble lift remains but there is less brightness and a more accurate tonal balance.

A smooth response across the vital mid-band suggests the loudspeaker will sound uncoloured, due to lack of local resonances that cause undulations in the observed response. Absence of a crossover suckout around 2kHz means there will be strong rendition of detail and no softness in the sound.

An absolutely flat response from 200Hz down to the speaker's -6dB lower limit at 40Hz says the Galan 9 is accurate at low frequencies, with no attempt to accentuate bass. It will almost certainly sound dry and well damped as a result.

Positioning close to a rear wall will lift output a little and this will be subjectively acceptable.

The narrow tuned port (red trace) provides a little extra boost at 50Hz and low acoustic damping will give a bouncy sound.

Sensitivity was high, 97dB Sound Pressure Level (SPL) being delivered from one nominal Watt (2.8V) – loud. With a measured impedance of 5.4 Ohms, and a DCR of 3.5 Ohms the Galan 9 draws current from an amplifier to achieve this sensitivity, but most rivals do the same. It is as loud as the best from any particular voltage input.

Our impedance curve has a classic shape for a ported loudspeaker with two drive units. Port frequency lies at the base of the dip (50Hz) and this corresponds with the peak of the red port output trace. Bass damping is fairly broad, suggesting clean, controlled bass without waffle.

The Galan 9 offers a classic set of test results. It is basically accurate, except for treble lift. Switching treble

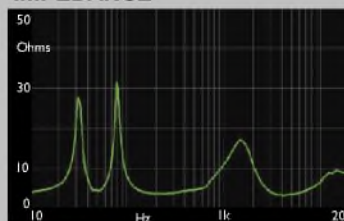
down to -1 largely ameliorates this however. Colouration is low, and bass in perfect balance. It will sound smooth, balanced but with sheen, and likely tight and fast in its bass, but not heavy unless pushed against a wall. **NK**

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



QUADRAL AURUM GALAN 9 FROM £2000



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

A cracking little loudspeaker from Quadral that impresses more and more the longer you listen.

FOR

- extended treble
- good bass
- excellent build quality

AGAINST

- nothing at the price

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Retro pocket giant

The HP-A4BL DAC/headphone amp from pro-audio stalwart Fostex? Definitely bigger than it looks, reckons Martin Pipe.

Looks like an electronic gadget from the early 1980s, doesn't it? A compact CB radio transceiver, perhaps, or a video dubbing-enhancer. It's the black-and-silver finish, large knob (with integral on/off switch) and push-buttons that do it. The 'retro chic' of the Fostex HP-A4BL 'headphone DAC' is packed with technology that would have been inconceivable in the '80s. The HP-A4BL is, however, designed entirely with digital audio in mind.

That means it has an asynchronous USB port for computer sources, and an optical digital-input socket (S/PDIF), accepting 16 or 24bit audio, at sampling rates of up to 192kHz via the latter. Switch to USB via one of those push-buttons, though, and with appropriate software configuration you can also enjoy DSD all the way to 11.2MHz (5.6MHz if your

computer happens to be a Mac). Fostex even makes available for free download a stripped-down software player (Fostex Audio Player) for both PCs and Mac. You can, however, use third-party alternatives like the free Foobar2000 (successfully configured during the review for optimal performance) or the not-so-free JRiver Media Center. Windows users will need to install drivers; those reliant on Macs have it easier. A series of front-panel LEDs indicate the format of the incoming source.

You can't feed the unit with an analogue source - although a pair of phono sockets will route decoded digital sources to your hi-fi system (phones and line output can't be active simultaneously). That neatly-formed knob, which adjusts headphone volume, will also control the unit's output level so that you don't experience a 'jump' when switching to or from another source.

It works in conjunction with a 'gain' button, which is provided so that the HP-A4BL can accommodate headphones of different sensitivity (it has no effect on the line output). Talking of which, the unit caters for balanced headphones courtesy of a 4-pin XLR socket that visually-balances the volume knob. The HP-A4BL is one of the most affordable headphone DACs with this feature. Thanks to a 6.3mm socket, standard 'unbalanced' headphones aren't forgotten but you can't drive both types at the same time. Plug in conventional cans and your balanced ones go silent.

An optical output is included, primarily so that PCM audio derived via USB can be routed to an existing DAC or digital recorder. Not far away is a micro-SD memory card slot. Does this mean the HP-A4BL has an in-built audio player, for self-contained use? Sadly, no. Fostex went



to all this trouble with the sole aim of facilitating firmware upgrades. A lost opportunity, in my book. If they are worried about the costs of licensing proprietary codecs, they could have limited support to uncompressed PCM and FLAC. And to keep things easy to use, my theoretical feature would automatically-play all tracks in numerical sequence on card insertion - unless a playlist file (generated by a simple program) dictates otherwise.

Another switchable feature is the digital filter's cut-off characteristics. This seems to be a function of the HP-A4BL's DAC, TI/Burr-Brown's venerable PCM1792. The chip, which supports DSD natively, is accompanied by an AKM AK4118 (responsible for the optical input) and a TI DSP chip (which includes the USB input). Switching regulators fed by the 'wall-wart' power supply generate the various DC voltages needed by the audio circuitry. The headphone amp relies on surface-mounted transistors - some of the electrolytics are 'audio' grade and several surface-mounted JRC 2114D op-amps are in attendance. Interestingly, one of the other op-amps (here a TI/Burr-Brown OPA2134PA) is socketed. This is presumably to facilitate 'swapping' - a subject, however, on which the manual is silent. Internal construction and PCB layout are busy but neat.

SOUND QUALITY

For large-scale listening, I pressed into service an Arcam A49 integrated amplifier driving Quadral Aunum Wotan VIII floorstanders. Sources included a Windows 7 PC (running the Fostex Player, as well as Foobar2000 configured for DoP) and an optically-interfaced Cambridge CXN streamer playing lossless CD rips and hi-res PCM material. As regards headphones, I tried both Oppo's PM3s and the TH-610s reviewed last month.

And so to the PC. I installed on mine the easy-to-use and hi-res compatible Fostex Player. This features basic transport controls, and allows you to assemble a playlist of songs. Formats can be mixed; MP3, WAV, FLAC, DSF and DFF are all supported. The first time I tried the program, all was well. The HP-A4BL's status LEDs reflected the tracks being played, and there were no glitches or other audible nasties. But for some reason, it would only accept MP3 and WAV files the next time I used it! I



Rear phono audio outputs allow connection to a hi-fi system and there's also a digital out. The microSD slot cannot be used for anything other than firmware updates.

switched to Foobar2000 thereafter.

Pye Corner Audio's 'Sleep Games' (CD rip) uses analogue synthesisers to create melodies that are dark and brooding. There's a lot of texture and warmth here, and when it comes to their reproduction the HP-A4BL never falls short of convincing. Switching to Led Zep IV (CD rip), and the unit proves to be an energetic performer. John Bonham's classic drum-solo that kicks off the band's reworking of 'When the Levee Breaks' retains its impact and excitement. The track's harmonica and guitars are endowed with plenty of bite too.

With Walton's 'Symphony No. 1 in B flat minor' the HP-A4BL

demonstrates an ability to impart a sense of scale; subtlety isn't however the unit's forte and some of the finer details, laid bare by more upmarket units like Prism's Callia and Chord Hugo TT, remain buried in the mix. A selection of DSD tracks confirmed this observation. Neither digital-filter mode helped in this regard, although I fancy I could detect a slight difference in openness. Such minor criticisms don't affect the unit's ability to make music enjoyable; quite an achievement given the price.

CONCLUSION

The Fostex HPA4BL has musical ability and good features at a reasonable price. Excellent value.

MEASURED PERFORMANCE

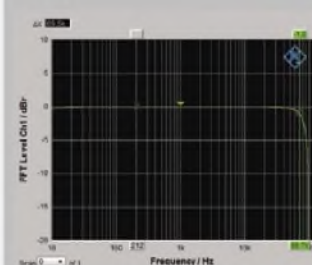
At best the Fostex HP-A4BL DAC provides a very respectable 117dB Dynamic Range through its front panel 1/4in (6.3mm) headphone jack and 4-pin balanced XLR output socket. The rear Line output was lower at 108dB, possibly due to noise from a line driver IC. But as the main function of the unit is to feed headphones this matters less.

Output levels were high all round: 2V from Line out and 1/4in headphone socket output at Lo, and 3V from the latter at Hi. The balanced XLR socket gives 3.6V (Lo) and 6.5V (Hi) - all these output values are very high, more than enough to drive any headphone.

Curiously, there is no electrical S/PDIF digital input, but optical works up to 192kHz, frequency response measuring flat out to a very high 88kHz (-1dB) with Filter 1. Selecting Filter 2 makes little difference at any sample rate but as it offers better damping it gives best impulse response and will likely sound best. Distortion levels were as expected from any good DAC: 0.21% with CD and 0.04% with hi-res (24bit).

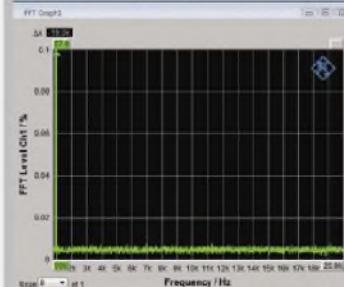
This neat little headphone amplifier measures well all round and delivers a great result from its unusual balanced XLR output socket, the only potential difficulty here being availability of 4-pin XLR plugs. NK

FREQUENCY RESPONSE



DISTORTION

THD @ 0dB	0.0404 %	2.1675 mV	996.97 Hz
CH1	OFF	OFF	OFF
CH2	OFF	OFF	OFF



Frequency response (-1dB)	4Hz-88kHz
Distortion (24bit)	0.001
0dB	0.001
-60dB	0.04%
Separation (1kHz)	96dB
Noise (IEC A)	115dB
Dynamic range	117dB
Output (line/h' phone)	2V/3V, 6V

FOSTEX HP-A4BL £380

EXCELLENT - extremely capable.

VALUE - keenly priced

VERDICT
 With a computer, the HP-A4BL would make a worthwhile budget front-end - especially if you like rock and dance music.

- FOR**
- supports balanced headphones
 - enjoyable reproduction with impact and scale
 - no-nonsense design

- AGAINST**
- can be rather 'in yer face' at times
 - lacks the finesse needed by some music
 - more could be made of that micro-SD slot

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All For One

The latest integrated amplifier from Cyrus features 100 Watts of Class D power together with Bluetooth and a phonostage – all for £699. Jon Myles takes a listen.

Cyrus has always gone about things in its own distinctive way. The Cambridgeshire-based company has produced compact, shoebox-sized products in sculpted cast alloy casework long before conspicuous quality became popular, helped along by Apple and now dubbed 'lifestyle'.

The company's first amplifier debuted more than 30 years ago in the mid-1980s in the shape of the Cyrus One. It quickly became a firm favourite with those looking for audiophile sound quality at a reasonable price – in an unintrusive yet elegant chassis.

Now the name has been revived (capitalised) with the launch of the £699 Cyrus ONE. But as electronics and how we listen to music has changed greatly since the 1980s this Cyrus is a very different beast from

its well-regarded predecessor.

It features Class D amplification delivering a claimed 100 Watts per channel into 6 Ohms (see Measured Performance for exact measurements). Then there's aptX Bluetooth for streaming music from a 'phone, tablet or computer, a Class A/B headphone output plus a moving-magnet (MM) phonostage. The only thing lacking is a DAC which may or may not be an issue for potential buyers.

Design-wise it retains the classic Cyrus shoebox size at 85mm x 220mm x 390mm (H/W/D) but the look is rather different. Instead of the small knobs, buttons and display screen found on most Cyrus amplifiers the glossy fascia sports two black, large diameter knobs for input selection and volume, surrounded by bright white LED lights. It's a distinctive design.

The LEDs light-up when the amp is powered up – not for show but indicating an unusual feature kicking into action. It's called SID (Speaker Impedance Detection) and automatically matches the amplifier's output response to the electrical load of the attached loudspeakers. Cyrus says this means the amp's sound should be consistent no matter what 'speakers are being used.

As well as Bluetooth and the MM input there are also four line-level inputs, including an A/V by-pass, a pre-out facility plus twin pairs of 'speaker binding posts to facilitate bi-wiring.

A credit card sized remote gives access to all controls from the luxury of your armchair and while it is small it is well laid-out and clear. Alternatively, there's a free app available for iOS and Android devices to do the job.



Weighing in at 5.6kg, the amplifier doesn't have the solidity of feel of Cyrus's other products and wobbly volume and selection controls were a concern.

SOUND QUALITY

The Cyrus certainly has good reserves of power and that comes through when you fire it up. It's a big, bold sound with plenty of punch to it.

Playing Aaron Copeland's 'Fanfare For The Common Man' (24/96) through the mighty Tannoy GRF90 Prestige loudspeakers (see review this issue) the sound hit me in the stomach with fantastic impact. There was weight and solidity, conveying the grandeur of the piece. The trumpets, trombones and tubas were also well-placed in the soundstage, so I could pick out individual players.

Moving to Tricky's 'Maxinquaye' the Cyrus also showed it is rhythmically adept, snapping between the differing time

signatures with a fleet-footed nature. It

doesn't have quite the drive of say the (albeit dearer) Naim

Nait 5si but it certainly has pace.



A crowded rear panel contains analogue line inputs, plus a phono input for LP. There is a pre-amp output too, and Bluetooth offers digital connection.

However, on the downside air and atmosphere around instruments was a little lacking at times. Arvo Pärt's 'Tabula Rasa' is a piece that needs room to breathe but there was a hint of congestion on it via the Cyrus.

It was the same feeling on John Coltrane's 'Ascension' where the individual parts of this dense, free-form jazz work-out tended to merge into one. It wasn't disastrous - just that some other amplifiers under £1000 handle it better - and with more detail.

Still, the Cyrus does also pack in Bluetooth and an MM phono stage. Streaming music via aptX was as good as this method gets. The unit paired with a tablet and mobile phone within seconds and the sound again had a good rhythmic quality. Playing the late Leonard Cohen's 'You Want

It Darker', his voice was every bit as gruff and gnarled as you'd want.

The phono stage worked well, having good bass depth with no background noise. Considering it's likely to be used by those returning to or dipping their toes into vinyl for the first time, using budget to mid-priced turntables, it's a useful addition.

CONCLUSION

Taken as a whole, this new amplifier is a clever product from Cyrus. Equipped with a healthy dollop of power, it combines traditional analogue inputs for existing CD players or other sources with Bluetooth and an MM phono stage in a small package for just £599. Build quality is less than impressive however, unlike trad. Cyrus products. But if those facilities are what you are looking for, it's worth investigation.

MEASURED PERFORMANCE

The Class D amplifier of the Cyrus One produced 98 Watts into 8 Ohms and 182 Watts into 4 Ohms, so it has enough power to go very loud in any situation.

Measuring distortion showed a complex picture of fluctuating low level noise generated by Class D processing, mostly above 20kHz. It is difficult to say how this will affect sound quality, but it will not be for the better. In-band distortion was low however, except at high power at high frequency, where distortion reached a high 0.5%, but this is a condition rarely met in normal use.

To reduce high frequency rubbish, Class D amplifiers use a Low Pass output filter network that narrows frequency response as load decreases, ameliorated by multiple feedback loops. The Cyrus One reached 52kHz into 8 Ohms but just 13.4kHz into a 4 Ohms - a big difference. Automatic tuning at switch-on is used to correct this, giving the response (4Ω) shown here.

The Phono stage had very high gain, just 1mV in producing full output; 5mV is

a normal value for MM cartridges. This has the benefit of matching both MM and MC cartridges, but the trade off is low input overload headroom 20mV. No big issue, but this is a compromise phono stage.

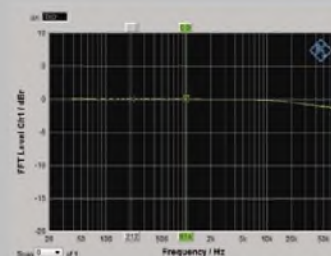
RIAA equalisation was accurate; there is no warp filter and low frequencies are plateau lifted slightly to ensure sound from LP has weight to it.

The Cyrus One measured reasonably well, but suffers Class D issues. **NK**

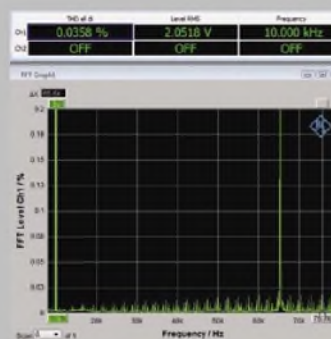
Power	98 Watts
CD/tuner/aux.	
Frequency response	3Hz-52kHz
Separation	96dB
Noise	-98dB
Distortion	0.03%
Sensitivity	250mV

Disc	
Frequency response	3Hz-20kHz
Separation	67dB
Noise	-71dB
Distortion	0.1%
Sensitivity	1mV
Overload	20mV

FREQUENCY RESPONSE



DISTORTION



CYRUS ONE £699



EXCELLENT - extremely capable.

VERDICT

A powerful but compact amplifier with distinctive sound.

FOR

- powerful but small
- phono stage for LP
- Bluetooth connectivity

AGAINST:

- can sound a little congested
- wobbly knobs
- mediocre build quality

Cyrus Audio
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ERIC CLAPTON

Live in San Diego
Reprise

A 2CD live album that was recorded on 15 March 2007 in the Ipayone Center, San Diego as part of the Doyle & Derek World Tour.

The subheading for this CD says 'With Special Guest JJ Cale' and the great man does indeed appear on five of the tracks here.

Apart from Cale, you should look out for Robert Cray, Doyle Bramhall II and Derek Trucks.

There's plenty of familiar songs on this CD, including the blues-inspired 'Crossroads', 'Layla', 'Cocaine' and 'Wonderful Tonight' while Clapton is on fine form. 'Layla', for example, might feature a slightly soft edged guitar lead (instead the familiar crisp playing style of yore) but Clapton puts in lots of vocal effort to convey those famous lyrics while his female backing singers help him to reach the high notes.

I'm very happy with the mastering quality of this CD. Live

performances are a real hit and miss affair at the best of times. Taken away from the careful control that can be administered within a studio environment, live concerts are sonic traps that foster unruly sound frequencies. You've got the often wide open space, all of the people, the raised stage doesn't help (believe it or not), the sound system on stage... you name it.

If a sound engineer is canny and skilled, as this one was, then you can trap the essence of a good concert: the energy, the passion, the feeling of running with the flow of the music. Hence, the dynamic reach of the upper mids gives a good account of itself here while bass is driving and hefty in terms of mass. Clapton's vocals are clear and well delivered while the audience (always a dodgy element in live recordings) is noticeable, yes, but never swamps the music or intrudes upon the performance.

AUDIOPHILE CD



LET IT BE

Black America Sings Lennon, McCartney & Harrison
Ace

I normally cringe when a Beatles covers CD is produced. I wonder why these people bother. I say this because most cover songs from The Beatles tend to be poor quality copies, as opposed to covers, revealing a lack of imagination and originality in the singer.

But then, I listened to this CD and thought that there might be some life in The Beatles cover after all. This is one of those 'various artists' things which features twenty-two songs from the Fabs and, as with most of these collections, has its ups and downs.

For example, The 5 Stairsteps sing 'Dear Prudence' like John Lennon. Why? Lennon's already done it. So why do it again?

Then you get Aretha Franklin singing Eleanor Rigby and you realise what the word 'genius' is all about. Franklin obviously had a brain because it took a fair while before I even realised that she

was singing 'Eleanor Rigby', that's how good it was. It was original to Franklin.

Another big shout goes to Junior Parker's rendition of 'Tomorrow Never Knows' who sings the psychedelic classic like a soul ballad and nails it on one. Simple yet smoothly brilliant with a stripped arrangement.

I would argue that the most devastating interpreter of the Fab's work was Nina Simone. Her 'Here Comes The Sun' is excellent but try – please try – to grab her live version of Harrison's 'My Sweet Lord' (not on this CD but an incredible performance at over 18:30 minutes!)

For the mastering, the obvious results are variable because we are talking about a gamut of sources and interpretations, but there is plenty to like here in sonic terms as the overall tone is one of balance, which tends to work with the music and not against it.

There are fifty-six tracks packed onto two CDs here from the blues/R&B poet and singing genius.

In mastering terms, there have been many compromises in terms of the final sound quality because that is variable in the extreme. For example, right from the off we have Part 1 of 1947's 'Jack You Ain't Nowhere' which is full of sweeping noise, essentially from source wear which sounds like a dub from another record or possibly acetate. Of course, the rarity element of this collection has to be taken into consideration and so much of it has to be categorised as an archive collection as opposed to an audiophile showcase.

By the time we get to 1950's 'Half Awake (Baby You're Still A Square)', the inherent quality is far higher with a structured soundstage. Yes, the recording offers a measure of compression

which sounds like it was created for basic radios and record players (which it most certainly was) but provides a real sense of time and place so is all the better for it, in many respects.

From 1951, 'The Lonely One' increases the quality still further. Mayfield's vocal drawl in front of small orchestra which sounds like it's dead on its feet and ready for bed with a drunken piano frolicking in the back. This superb track is not only an audiophile's delight, considering the date, it's shows Mayfield's skill and talent in how to control and deliver a song to maximise the strong emotions behind it. The tragedy is that less than a year later, he would only survive a horrific car crash with a tragic facial disfigurement. The man never stopped though, this is the guy who penned Ray Charles' 'Hit The Road Jack'.

A real treasure trove of sonic and artistic delights that fascinates as much as it delights.



PERCY MAYFIELD

Lost Love: The Singles As & Bs
1947-1962
Jasmine

AUDIOPHILE CD

Or Huddie Ledbetter as he was also known. Lead Belly is an intriguing figure because he is not what most people assume him to be. That is, most people see him as a specialist blues artist, pure and simple and, frankly, this is not the case. Not the case at all. In fact, you could say that Lead Belly was a pure folk singer in the American tradition. He was as much folk as Pete Seeger was. As much as Woody Guthrie was. That might surprise some people but Lead Belly was a victim of racial stereotyping as a lot of black musicians were. The guy was black, he played guitar, ergo he was a blues man. The blues was just one of many genres that he tackled during his career.

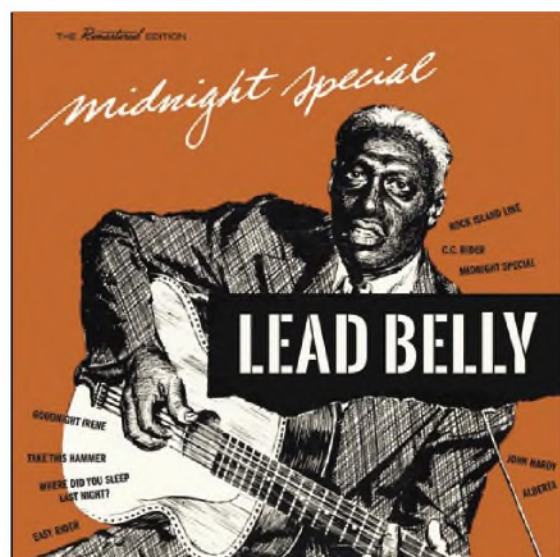
In his younger days, Lead Belly met up and played with Blind Lemon Jefferson around 1912. It was then that he changed his 6-string to a 12-string guitar. This

would be his life-long companion and the source of his trademark sound found here via free flowing songs such as 'Alabama Bound', 'Goodnight, Irene' and 'Rock Island Line'.

The sound quality is restricted in terms of dynamics and soundstage but the sources are all 78s and so, in those terms, the sonics are pretty darned good. The clean-up operation has been successful and surprisingly focused in terms of the precision of both the vocal delivery and background harmonies which are all tight, without any wavering or smearing.

A CD collection featuring iconic songs that would influence a host of talented musicians from The Beatles to Johnny Cash and from Pete Seeger himself to Jimmie Rodgers.

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"The bass end of things is the bit that shakes listeners"



Noel Keywood

Modern audio is boring, old hi-fi exciting. And I am just re-living my youth when I say this. Or perhaps not. 1970s hi-fi was about big audio: think Goodmans Mezzo K and Magister loudspeakers, Leak 2060s and 2075s and Wharfedale Airedales – look 'em up on the 'net. These days people listen to compressed MP3 via gutless portables into tinny earpieces. Could the contrast be bigger?

Big speakers – especially Goodmans Magnum Ks and Leak 2060s, were hot sellers. I know from a Saturday job I had back then, throwing them over the counter at eager customers, in a retailer on London's Edgware Road. Driven by transistor amps from Quad, Cambridge and Armstrong, fed by a record deck with a Shure M75 or V15-III, you had a funky system that could be played all night long (we did, we did!), inducing happiness, not fatigue. It also led you to an appreciation of the artists behind the music, and musicianship.

Tannoy's big GRF90s I review in this issue reminded me of those big-music times – and by inference what we do not have today, which is any way to get close to what was available then.

Loudspeakers so large are seemingly a throwback to a bygone age it may appear – but there is more to it. Tannoy continue to improve and refine their giant Prestige range loudspeakers so you get yesterday brought up to date. And overwhelmingly impressive they are as a result.

Yesterdays loudspeakers were, I suppose, anti-social – meaning you couldn't hear your neighbours complain!

But then not everyone lives in a terraced or attached home

(as I unfortunately do), even if in crowded Britain they are more than common, especially to townies. All those living in splendid isolation can play loud if they so wish, so why no loudspeakers capable of satisfying their needs? Not everyone lives in a terrace.

Today's big floorstanders are undoubtedly cleaner sounding and more composed than the old biggies. But the straight jacket of a one metre high cabinet made so narrow it needs feet to prevent it falling over and squashing the cat is still a depressing design approach. It is also a limiting one.

For a loudspeaker to play bass, it must not play bass. In other words, it must not resonate like a guitar string where a guitar string resonates, or the two just merge together to produce an acoustic morass. A lot of suspicion has fallen upon the ported reflex loudspeaker because of this – and it isn't entirely unfounded.

The real reason though is that most floorstanders, reflex ported or not, are sized down to the minimum possible volume – and it is box volume that is important, more than anything else. If you want to make a loudspeaker that does not resonate at a frequency that coincides with musical instruments, so allowing them to play freely and unblemished, you have to have a box and bass unit that resonate an octave lower. This means around 20Hz instead of 40Hz – the current design target.

It means using a box much larger than those we have today. Interestingly, there's no major reason a large volume box cannot be pushed back against a wall, so being less demanding of domestic floor space and less of a threat to the cat. Manufacturer's should encourage potential buyers to stick a vase on top of each, or whatever else takes their fancy, so the whole caboodle

becomes even more domesticated, and less of a technological eyesore – at least, as some see it – more domestically friendly.

Putting a loudspeaker against a wall and sitting at the other end of the room exploits the listening room's length mode resonance. This is sort-of fine, if you do it right. Harking back yet again, to the 1990s, large stand mount loudspeakers like the Epos ES 14s were popular. They were over-damped, for use close to a rear wall. This drove the room well, giving a fast punchy sound from a not so big cabinet. The speaker itself was acoustically heavily damped so did not go gloopy and overhang when hit with heavy bass guitar notes. It was a good formula, but those speakers were room critical, needed power, did not go below 40Hz and, with small highly stressed bass units, produced bass distortion, making them sound stressed rather than relaxed.

Big volume loudspeakers tuned low are less room sensitive and handle low frequency sounds, from drums, guitars, synths with equanimity, not imposing their own resonances upon the music.

Their distortion is low too, around one third that of smaller 'speakers our measurements show.

What I am saying in all, then, is that those big 1970s boxes had strengths we seem not to see, as well as weaknesses we do see – in retrospect. The sight of a Goodman's Magnum K on Google Images is enough to make any loudspeaker engineer laugh, but it made a lot of people happy and they would do well to know why. Because the bass end of things is the bit that shakes listeners and – unfortunately – the bit the loudspeaker business least understands. It's also the reason modern audio is boring and old hi-fi exciting! ●

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"The first few positive steps after a knock back are the toughest"



Paul Rigby

What's that saying again? "If at first you don't succeed, try, try, try again". It was apparently created by the Victorian educator, William Edward Hickson.

If you are of an optimistic bent, which I am I have to add, then the knocks from life will be but temporary occurrences. What, after all, is the alternative? Life is surely too short not to grasp it and make use of it. The first few positive steps after a knock back are the toughest. Once you're underway, though, things get a lot easier.

Anthony Phillips must have surely felt like that. "Anthony who?" you ask? Well, exactly. Phillips was one of the founders of the prog rock outfit, Genesis. He attended Charterhouse school with Peter Gabriel, Tony Banks and Michael Rutherford. Phillips was one of the main composers in the band, in fact. When the album, 'Trespass' was released, Phillips was suffering from terrible stage-fright and so he retired into the background and out of the band. Nevertheless, his songwriting skills can still be heard on the band's album follow-up, 'Nursery Cryme'.

Phillips then became a solo artist from 1977 and began to utilise bits and pieces of unfinished work that he had written for Genesis, as well as taking and evolving his style onto a number of solo works as well, as projects for TV and film. His synth work is good but his guitar playing is truly brilliant.

In an odd way, Anthony Phillips has had the last laugh. The joke is not only on Phil Collins and Peter Gabriel, it's also on us. Why? Because Phillips has quietly kept the soul of early Genesis safe and done so without much fuss. The magic in that

early version of the legendary prog rock outfit? Phillips has held onto it for safe keeping. So for those who lamented and continue to lament the death of Genesis, the real Genesis and for those still wrapped up in the needless and sometime petty disagreements about the pros and cons of 'Collins vs Gabriel' and who still pursue the blame game, Phillips offers you both solace and healing because, to me, Phillips is Genesis. You only have to listen to his music and the recently released Esoteric CD box set 'Private Parts & Pieces V-VIII' is just one minor example of that, to confirm that view. For a Genesis fan, this knowledge, once you hear Phillips' music, is quite revelatory.

Phillips has maintained that essential, classically ethereal sound and not only retained the music threads from the past but then developed and moved that sound forwards. He's done what Gabriel (who left) and Collins (who went commercial) should have done with the early and, some say, true Genesis sound. If you are a fan of the classic Genesis albums such as 'Trespass' and 'Nursery Cryme' and you often sigh and wonder about the 'what ifs' and the 'maybes' then check out Anthony Phillips. He has all of the answers and is a glorious example of trying and trying again.

Of course, Phillips is not the only one to have found success after picking themselves up off the ground after a knock back. If you look at bands such as Yes, King Crimson, Deep Purple and Hawkwind, you will see right there, bands who have 'suffered' dramatic changes in line-ups that would have killed most bands stone dead. Each of these bands featured strong determination to carry on. A dramatic will power, if you will. Hawkwind (who are the subject

of a new box set release called 'The Charisma Years 1976-1979') emerged from multiple band names (i.e. Group X, Hawkwind Zoo and then Hawkwind). Their early lack of success and then even more lack of luck that included multiple equipment thefts and health issues, despite 'trying and trying again' never got the band down. They even 'appeared' at the Isle of Wight Festival. Well, outside the fence in 1970 as The Who and Jimi Hendrix played inside it.

The band kept plugging away – with more group members coming and going, their second single 'Urban Guerrilla' withdrawn because of terrorist attacks in London, being arrested in Idaho, USA on non-payment of tax charges – and on and on.

Hawkwind existed and exists despite all of this. The band continued and continues because of sheer bloody mindedness. The thing is, the fans love them dearly for it. In many ways, Hawkwind is the UK version of America's Grateful Dead. Not in the type of music that both bands play – although there are related 'spacey' elements where both bands do touch upon in the upper regions of the ether.

The similarity is partly because of the rotating roster, but also because both are to be digested as a live experience and because the fans see the band as part of their extended family. Such was the band's infiltration within their lives.

Trying and trying again can bring immense benefits both to you and the people you come into contact with. Often the value of trying and trying again is unforeseen but produces significant and powerful results, as we've seen above. And that's exciting. ●



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“Digital downloads are available from more sources than ever”



Jon Myles

Who still buys CD these days? Yes, that may seem a silly question but not quite as much as you might think.

The thought popped into my head while I was visiting Q Acoustics research and development department in Woking recently, listening to a demonstration of their new Concept 500 loudspeakers (see the News section for full details).

A series of (rather good) test tracks were being played via computer into an Audiolab DAC and then Naim amplification. Not a silver disc spinner in sight.

Nor was this an isolated occurrence. Go to any hi-fi show or product launch and the trend is for the replay to be via a computer/network attached storage-based system. The odds of seeing a CD player pressed into service are on a par with those of England's football team winning the next World Cup.

The reason is pretty simple. Set-up properly with the right cables this form of playback easily matches and regularly beats that of compact disc – especially when replaying high-resolution material which is beyond the capabilities of CD.

There's also the convenience factor. Thousands of albums stored on a hard disk, the ability to choose between them however you want – be it via artist, genre or even those you've played most before. No more searching around via racks of CDs to find just the one you want to listen to.

Then, there is also the fact that actually buying CDs is becoming much more difficult. Walk down your average High Street in any UK town or city and you'll be extremely lucky to find anywhere selling them.

WH Smith stocks a few, Tesco and Sainsbury's as well – but it's hardly a comprehensive range. Yes HMV still has just over 120 stores but that's well down from the 320-plus in its 1990s hey-day and its product range is now dominated by DVDs, Blu-ray discs, books, video games as well as an increasing range of movie, television and music merchandise.

Digital downloads, however, are there at the press of a button from your own home and available from more sources than ever could have been envisaged just a few years ago. Amazon sells them, Apple sells them, the aforementioned HMV sells them to an increasing degree and then there's the likes of Linn and Naim, HDtracks, Blue Coast, Norway's 2L plus any number of individual labels that offer full artist repertoires directly from their own dedicated websites.

No surprise, then, that this is becoming the more popular method of buying and consuming music. It's easy, convenient, can be done from the comfort of your own home and offers greater flexibility once downloaded.

Also to be factored in is the fact that the appeal of physical ownership of storage mediums such as a CD or vinyl record is fast diminishing. At one time many thought this would be a barrier to the growth of downloads. I'll admit, I was one of them. Could playing back a downloaded file ever match the joy of listening to the same music while holding its CD cover or classic album sleeve in your hands while you do so? I didn't think so at one time.

Well, perhaps the way digital photography overtook traditional film should have made me think twice. When the former's quality and price point first saw them take off in sales

terms at the start of this millennium many adherents of the latter format doubted a digital image viewed on a screen could ever match that of holding a physical photograph in your hands or viewing it in a carefully put together album. Nine years later the digital option ruled the roost while sales of both 35mm cameras and rolls of film had fallen off a cliff.

Interestingly, the same is now starting to happen to digital cameras themselves as people increasingly rely on their mobile 'phones or tablets for snapping images; sales are falling year-on-year. But that doesn't mean the days of film are going to make a comeback.

And so it is with the venerable CD. Increasing numbers of people with large collections are ripping them to their computers or NAS drives and either storing the silver discs in their lofts or lugging the entire lot down to a charity shop while buying new music via download services or relying on streaming services such as Spotify or Tidal for their music.

That's why new CD sales are falling around 11.6 per cent annually across the world according to latest figures. That's a trend that is only going to continue in the forthcoming years and probably accelerate until the actual stocking of such a medium in shops becomes completely uneconomical.

For those of us who grew up consuming the majority of our music on those silver discs there's a slight nostalgic sadness about it. But, as I've already moved over to replaying my music through a network attached storage drive and top-notch streamer, I won't be shedding too many tears. Much in the same way that I don't miss taking rolls of film down to Boots to be developed. ●

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Burson Audio Conductor and Timekeeper	£3,449	£2,299
Burson Audio Conductor SL9018	£1,199	£999
Chord Chordette Maxx amplifier	£989	£799
Cyrus 82 DAC QX (Quartz Silver)	£1,970	£1,549
Cyrus SmartPower	£699	£349
Denon AVP-A1HD processor	£6,799	£1,499
Denon DVD-A1UD universal player	£4,500	£1,199
Devialet 200	£5,490	£4,399
Devialet 250 Companion	£7,990	£5,499
Devialet 400	£9,890	£6,999
Dynaudio Focus 220	£2,600	£799
Focal Diablo Utopia + stands (White Carrara)	£9,898	£6,499
Focal Scala Utopia V2 (Black Lacquer)	£21,399	£12,749
Focal Stella Utopia Reference (Imperial Red)	£65,000	£32,499
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Sonus Faber Olympica II (Graphite)	£6,398	£5,049
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Sonus Faber Venere 1.5 + stands (Gloss Black)	£1,298	£999
Spendor D1 (Dark Ebony)	£1,995	£1,499
Torus RM16 power conditioner	£7,900	£1,999
Vitus RCD-101 (Black)	£9,700	£7,249
Vitus RI-100 (Black)	£9,500	£6,999
YG Acoustics Carmel (Silver)	£20,000	£14,999

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"The Benkson HR-408A also found a place on board Thunderbird 5!"



Martin Pipe

It's truly amazing what you can pick up at boot sales. Stopping by a local stall specialising in memorabilia like pre-decimal coinage and old football programmes, I came across a tatty box containing the remains of a hand-cranked Pathéscope Ace 9.5mm projector from the mid-1930s, alongside some metal-canistered 'Pathé Baby' films (black-and-white cartoons, shorts and newsreel footage).

Wealthy owners of these devices could also project their own black-and-white films, shot with a clockwork-driven ciné camera like the Pathéscope 'H'; a valuable chronicle of pre-war everyday life spans these 'home movies'. The 9.5mm domestic film gauge, sprocket-holes between the frames, was displaced first by 8mm and then Super-8. In the early 80s, video took over.

The Baby reels are – as their name suggests – tiny, the canister diameter being 2in. and run for a maximum of three flickery minutes. 'Talkie' technology hadn't yet reached the format, and the films were illuminated with the aid of nothing more sophisticated than a large torch-bulb powered by a transformer unit. Rooms had to be completely dark, if pictures were to be viewed comfortably. In the years before TV, this sort of thing was the closest you got to 'bringing the cinema home'!

But what's this? Among the Babies was a 3in. reel of audio tape, its contents secured by elastic band. Tapes this tiny were aimed primarily at practitioners of 'tapesponding' – exchanging 'letters' by tape, then seen as an alternative to the pen or typewriter. In the early 1960s, tapesponding was quite popular among owners of mutually-compatible recorders. It was a novelty to hear the voice of

a 'tapespondent', whether a relative or a friend made through a tape-recording magazine, talking through the machine's speaker. It shouldn't be forgotten that long-distance phone-calls – never mind international ones – were then expensive propositions.

There was another application for these small reels. A number of firms marketed portable battery-powered recorders that achieved compactness through transistors (sustainable by dry-cells) and miniature reels. Pitched at enthusiasts looking to make recordings 'in the field' was the Fi-Cord 1A. Cheaper models, imported from Japan, were mediocre performers. Typically supplied with crystal microphones, they were aimed at fun-loving teenagers. Pop records could be taped to be enjoyed 'on the move' in a 1960s precursor to ghetto-blasters and the Walkman.

A typical example of this class of machine will be familiar to fans of the classic 'supermarionated' TV series Thunderbirds. The Benkson HR-408A, sold in Woolworths stores, also found a place on board Thunderbird 5!

Small recorders could, naturally, also be smuggled into more earthly surroundings so that musical performances could be clandestinely captured. Eventually cassettes would displace small reel-to-reels but, for a while, these little machines were undoubtedly the source of many 'recordings of independent origin'.

Which brings me neatly to my tape. Loaded onto my ex-BBC Preco F500, I sighed with relief on discovering that it was recorded, in compatible half-track, at the deck's lowest 3.75ips speed. It was evidently a rock 'n' roll/beat-pop band playing covers more than competently – but the audio was distinctly low-fi. Among the numbers I heard were 'Sweet Little Sixteen', 'This Time' and

'How Do You Do It?'. That dates my tape to no earlier than 1963. Judging by the acoustics, the mic was near the back of the room. And if accents are anything to go by, the audience was mostly American – youngsters who – like so many – welcomed the 'British invasion'.

Sometimes, such equipment was allowed into venues. A few bands – most notably the Grateful Dead – encouraged their performances to be taped.

And then there's the early show by fellow Californians The Doors, taped at Jim Morrison's request by photographer and film-maker Nettie Peña. This tape has now been restored, complete with 'noises off' to retain its live sheen. It's the centrepiece of a £40 limited-edition Rhino 10in. LP/CD box-set, complete with a selection of 8x10 photos and reproduction ephemera. At that time (1966), The Doors were playing the small LA venue London Fog. They were soon to become resident at the better-known Whisky-a-Go-Go club, release a series of classic LPs and attain a place in rock history.

No need for surreptition here; a decent-quality portable machine running at 7.5ips, could be used – and the mic is closer to the band. The sound quality, while not perfect, is nevertheless enjoyable – and a fascinating snapshot of the band in an early bluesy phase. Among the delights are covers of standards originally recorded by Little Richard, Wilson Pickett and Muddy Waters. The stand-out track of the seven nods towards the band's future direction – a remarkably full-sounding version of 'Strange Days'. Given that The Doors' eponymous first LP was released in 1967, perhaps we can look forward to more early material from the band in 2017, derived from old tapes like the one found in a boot sale. ●

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Srajan Ebaen, 6moons.com, October 2016*

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Ace Of Bass

A new sub-woofer from Eclipse could bring out hidden depths in your loudspeakers, says Jon Myles.

Eclipse are famous for their distinctive, ovoid loudspeakers containing a single full-range drive unit. Refreshingly different from your average box 'speaker they are supremely fast and insightful with impressive agility, allied to pinpoint stereo imaging.

Perhaps not quite so well-known, however, is that the Japanese company (Eclipse is a subsidiary of the mighty Fujitsu) has also adapted some of the painstaking

engineering employed in its series of loudspeakers for use in a series of sub-woofers – the latest of which is the TD520SW on review here.

Sub-woofers can divide opinion amongst hi-fi aficionados – probably because while some are adept at reproducing the booms and bangs of explosions while watching films in a dedicated AV system they also struggle to reproduce taut, fast bass when listening to music.

Eclipse, though, say the TD520SW has been specifically

designed to have similar reactive speed and response times as their passive 'speakers, while still producing a much more extended low-end.

To achieve this the subwoofer uses two relatively small 20cm drive units made of a paper/kevlar composite that is said to combine stiffness with rapid stop/start times. These are arranged in a so-called R2R (rear-to-rear) configuration on opposite sides of the cabinet and operate in-phase. They are braced together by a thick aluminium



shaft aimed at cancelling vibrations and neither is actually bolted to the cabinet. Instead the shaft is secured at two points to the internal bracing and a vibration-reducing material used at these spots to minimise the amount of energy getting into the cabinet.

It's a similar arrangement to that used in Eclipse's loudspeakers and means the drive units are as close as you can get to actually 'floating' inside the sub-woofer enclosure.

The gloss black cabinet itself measures H420mm x 459mm x 444mm (H/W/D) and weighs in at 37kg – which is a two-person lift when unpacking but not so heavy that you can't slide it around on the floor on your own for positioning.

Inside, power is supplied by one of Bang & Olufsen's respected Class D ICePower modules rated at 250 Watts. That might not sound much in the days when bigger sub-woofers boast amplifier power of 500 to 700 Watts – but it is more than enough to do the job if well-implemented.

SET-UP

Setting up the Eclipse is relatively simple. The rear has two separate inputs that can be switched between via the supplied remote control.



A busy control panel has Low Pass Filter settings for 'speaker matching. There is phase reverse too.



Inputs include loudspeaker level in/out connections, plus line-in if your amplifier has a sub-woofer out connection. There's also a low-pass frequency switch on both inputs to match the main loudspeakers.

Eclipse purposefully eschew the use of digital signal processing - believing any added layer of electronics can sully the sound, although a bass/direct switch can be used to add extra impact if desired.

SOUND QUALITY

I initially paired the TD520SW with a set of bookshelf loudspeakers - namely the exceptional Quadral Aurum Galan 9s.

These are quite bright and detailed thanks to the ribbon tweeter, having a commensurately fast sound to them. They do lack a little low-end punch, though, due to their size.

The Eclipse sub immediately solved this problem. Adjusting its volume to three provided a firm and solid foundation for the Galan 9s, enabling the soundstage to expand into the room.

Importantly, the three units came together as a whole with no feeling of listening to a number of different drive units. On 'Mingus Ah Um' Charles Mingus's walking bass lines had resonance and more impact than with the Aurums on their own. The foundation it laid allowed the saxophone of Lester Young to take on a more detailed feel, leading edges having



The rear panel carries input level controls and has loudspeaker cable feedthroughs.

TOTAL ECLIPSE

Not surprisingly, due to the common engineering philosophies between the two, the Eclipse sub-woofer works superbly with the company's own loudspeakers. The Eclipse TD510Z MKII 'speakers are fast, beautifully balanced sonically with stereo imaging it is hard to better.

However, they do lack a certain something in the low-end due to their size. Connecting the TD520SW brings a significant change.

You do not lose the character of the TD510s but what you get is a much more expansive and richer musical experience.

The bass line on The Smith's 'Barbarism Begins At Home' has much more force to it but not at the expense of the higher registers.

What you start to hear is the full expansiveness of the music. Do not expect wall-shaking bass (the sub is not positioned to do that) but what you will get is a thoroughly enjoyable performance. This is a combination that has all the power of a traditional box loudspeaker but is at the same time faster, more realistic and with stereo imaging few rivals can match.

Listening to Bjork's 'Black Lake' her plaintive vocals hung in the air well free of the drive units with eerie realism yet the pounding bass at the end of the track was relayed with a power the TD510Zs just cannot manage on their own.

It was a performance able to make the hairs on the back of your neck stand up - just as live music can do.



extra definition.

This is a subtle effect - the sub-woofer underpinning everything without ever intruding to become dominant. Placed correctly (I found between the loudspeakers was ideal with a slight slant to get the dual drivers firing away from walls) it had the ability to open up the sound of its partnering loudspeakers.

The effect proved consistent with a variety of loudspeakers - paired with Eclipse's own TD510Z MKIIs – see box out – they didn't rob these 'speakers of their inherent pace but added a much firmer foundation.

CONCLUSION

This new Eclipse sub-woofer is one of the most musical I have heard. Its bass is not of the boom and bang variety but speedy with no overhang. Used in conjunction with Eclipse's own loudspeakers it was ideal - but it could well provide just the solution for anyone looking for a more solid bass foundation for other loudspeakers.

ECLIPSE TD520SW SUB-WOOFER £3000



OUTSTANDING - amongst the best.

VERDICT

A musical sub-woofer that brings low-end boost without degrading the sound. Careful set-up recommended.

FOR

- fast bass
- set-up options
- construction

AGAINST

- needs careful placement

Eclipse
+44 (0) 207328 4499
www.eclipse-td.com/uk

We do not sell these products. It is for your information only.

WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

TURNTABLES

EAT FORTE 2009 £12,500
Lavishly finished two box, two motor turntable with gorgeous Koda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



FUNK FIRM VECTOR II 2009 £860
Innovative engineering gives a nimble, peppy and musical sound that's one of the best at the price.

REGA P2 2008 £300
Excellent value for money engineering, easy set up and fine sound.

MCINTOSH MT10 2008 £8,995
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

REGA P3-24 2008 £405
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

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.

AVID VOLVERE SEQUEL 2007 £4,600
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

MICHELL GYRODEC SE 2005 £1,115
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

MARANTZ TT-15S1 2005 £1,299
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound plug and play package at this price point.

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.



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.

SME MODEL 10A 1995 £4,700
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

LINN AXIS 1987 £253
Cut-price version of the Sondek with LVX arm. Elegant and decently performing package. Later version with Akito tonearm better.

TECHNICS SL-P1200 1987 £800
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

ROKSAN XERXES 1984 £550
Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

DUAL CS505 1982 £75
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

MICHELL GYRODEC 1981 £599
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

TOWNSHEND ROCK 1979 £ N/A
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

MARANTZ TT1000 1978 £ N/A
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



REGA PLANAR 3 1978 £79
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

SONY PS-B80 1978 £800
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

TRIO LO-7D 1978 £600
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

ADC ACCUTRAC 4000 1976 £300
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

PIONEER PLC-590 1976 £600
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

PIONEER PL12D 1973 £36
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



TECHNICS SP10 1973 £400
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

LINN SONDEK LP12 1973 £86
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.

ARISTON RD11S 1972 £94
Modern evolution of Thorens' original belt drive paradigm. Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

GOLDRING LENCO GL75 1970 £15.6S
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

GARRARD 301/401 1953 £19
Tremendously strong and articulate with only a veiled treble to let it down.



THORENS TD124 1959 £ N/A
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.

TO NEARMS

REGA RB251 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 counter-weight modification.

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

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



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.

MICHELL TECNODARM A 2003 £442
Clever reworking of the Rega theme, using blasting, drilling and rewiring!

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

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

SME SERIES V 1987 £2,390
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

NAIM ARO 1986 £875
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



ALPHASON HR100S 1981 £150
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

SME SERIES III 1979 £113
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

TECHNICS EPA-501 1979 £ N/A
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

LINN ITTOK LVII 1978 £253
Japanese design to Linn specs made for a musical, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

AUDIO TECHNICA AT 1120 1978 £75
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

HADCOCK GH228 1976 £46
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.

ACOS LUSTRE GST-1 1975 £46
The archetypal S-shaped seventies arm, good, propulsive and involving sound in its day, but ragged and undynamic now.

SME 3009 1959 £18
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

PHONO STAGES

CREEK OBH-8 SE 1996 £180
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

MICHELL ISO 1988 £ N/A
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



LINN LINNK 1984 £149
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

INTEGRATED AMPLIFIERS

NAIM NAIT XS 2009 £1,250
With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

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.

SUGDEN A21A S2 2008 £1,469
Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

CREEK OBH-22 2008 £350
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

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 IA4 2007 £3,650
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

NUFORCE P-9 2007 £2,200
Impressive two box preamp with superb resolution and an engaging sound.

MELODY PURE BLACK 101D 2007 £3,295
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

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.

MCINTOSH MA6800 1995 £3735
Effortlessly sweet, strong and powerful with semi-nal styling to match.

DELTEC 1987 £1900
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

EXPOSURE VII/VIII 1985 £625
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



AUDIOLAB 8000A 1985 £495
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

VTL MINIMAL/50W MONOBLOCK 1985 £1,300
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

MUSICAL FIDELITY A1 1985 £350
Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



NAIM NAIT 1984 £350
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

CREEK CAS4040 1983 £150
More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

MYST TMA3 1983 £300
Madcap eighties minimalism, but a strong and tight performer all the same.

ROTEL RA-820BX 1983 £139
Lively and clean budget integrated that arguably started the move to minimalism.

NAD 3020 1979 £69
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

ROGERS A75 1978 £220
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

A&R A60 1977 £115
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



SUGDEN C51/P51 1976 £130
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

SUGDEN A21 1969 £ N/A
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

ROGERS CADET III 1965 £34
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

CHAPMAN 305 1960 £40
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

POWER AMPLIFIERS

ELECTROCOMPANIET NEMO 2009 £4,995 (EACH)

Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

NUFORCE REFERENCE 9SE V2 2006 £1,750
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

QUAD II-80 2005 £6,000 PER PAIR

Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



QUAD 909 2001 £900
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.

NAIM NAP 500 2000 £17,950
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

MARANTZ MODEL 9 1997 £8000
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

MICHELL ALECTO 1997 £1989
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



MUSICAL FIDELITY XA200 1996 £1000
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

PIONEER M-73 1988 £1,200
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

KRELL KMA100 II 1987 £5,750
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

RADFORD STA25 RENAISSANCE 1986 £977
This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

QUAD 405 1978 £115
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

LECSON AP1 1973 £ N/A
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

QUAD 303 1968 £55
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

LEAK STEREO 20 1958 £31
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



LEAK STEREO 60 1958 £N/A
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

QUAD II 1952 £22
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly



LEAK POINT ONE, TL10, TL12.1, TL12 PLUS 1949 £28
Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

PRE AMPLIFIERS

AUDIOLAB 8000C 1991 £499
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



CROFT MICRO 1986 £150
Budget valve pre-amp with exceptionally transparent performance.

CONRAD JOHNSON MOTIV MC-8 1986 £2,500
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

AUDIO RESEARCH SP-8 1982 £1,400
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

LINN LK-1 1986 £499
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

NAIM NAC 32.5 1978 £ N/A
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

LECSON AC-1 1973 £ N/A
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

QUAD 33 1968 £43
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



LEAK POINT ONE STEREO 1958 £ N/A
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

QUAD 22 1958 £25
The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for anacrophiles only.

LOUDSPEAKERS

WHARFEDALE DIAMOND 10.3 2010 £290
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



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

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...



SPENDOR A5 2009 £1,695
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

MONITOR AUDIO PL100 2008 £2,300
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.



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.

PMC OB11 2008 £2,950
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

ISOPHON GALILEO 2007 £2,100
Big standmounters that really grip the music and offer quite startling dynamics and grip.

ONE THING AUDIO ESL57 2007 £1,450
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

MOWGAN AUDIO MARON 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.



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.

B&W 686 2007 £299
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

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.

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



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.

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.

USHER S-520 2006 £350
Astoundingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

ACOUSTIC ENERGY AE1 CLASSIC 2006 £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



MISSION X-SPACE 1999 £499
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

MISSION 752 1995 £495
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

TANNOY WESTMINSTER 1985 £4500
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



CELESTION SL6 1984 £350
Smallest two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

HEYBROOK HB1 1982 £130
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic.



QUAD ESL63 1980 £1200
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

MISSION 770 1980 £375
Rank in its day, it was an innovative product and one of the first of the polypropylene designs. Warm, smooth, clean and powerful sound.

ACOUSTIC RESEARCH AR18S 1978 £125
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

YAMAHA NS1000 1977 £532
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



JR 149 1977 £120
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging.

KEF R105 1977 £785
Three way Rextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

SPENDOR BC1 1976 £240

Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



IMF TLS80 1976 £550
Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110

Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

BBC LS3/5A 1972 £88
Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence.

LEAK SANDWICH 1961 £39 EACH
Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying

QUAD ESL57 1956 £45 EACH
Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.

SYSTEMS

MERIDIAN SOOLOOS 2.1 2010 £6,990
Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.



NAIM UNITIQUE 2010 £995
Great little half width one-box system with truly impressive sound allied to a wealth of source options

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 it bigger brother.

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. Just listen.

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.



AURA NOTE PREMIER 2007 £1,500
Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



MARANTZ 'LEGEND' 2007 £22,000
The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.

ARCAM SOLO NEO 2006 £1,100
Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

PEACHTREE AUDIO IDECCO £1,000
Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



TUNERS

ARCAM FMJ T32 2009 £600
Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



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.

MYRYAD MXT4000 2005 £1,000
Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts

NAIM NAT03 1993 £595
The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

CREEK CAS3140 1985 £199

Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

QUAD FM4 1983 £240
Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



NAD 4040 1979 £79
Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica

MARANTZ ST-8 1978 £353
Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

YAMAHA CT7000 1977 £444
Combines sleek ergonomics, high sensitivity and an explicit, detailed sound

SONY ST-5950 1977 £222
One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.



ROGERS T75 1977 £125
Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.

SANSUI TU-9900 1976 £300
A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.



TECHNICS ST-8080 1976 £180
Superb FM stage makes for a clean and smooth listen.

REVOX B760 1975 £520
The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

SEQUERRA MODEL 1 1973 £1300
Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display

LEAK TROUGHLINE 1956 £25
Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.

HEADPHONE AMPLIFIERS

GRAHAM SLEE NOVO 2009 £255
Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



MUSICAL FIDELITY X-CAN V8 2008 £350
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

CD PLAYER/RECORDERS

MUSICAL FIDELITY TRIVISTA 2002 £4000
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

MARANTZ SA-1 2000 £5,000
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



SONY MDS-JE555ES 2000 £900
The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

PIONEER PDR-555RW 1999 £480
For a moment, this was the CD recorder to have. Clean and detailed.

MARANTZ DR-17 1999 £1100
Probably the best sounding CD recorder made, built like a brick with a true audiophile sound and HDCD compatibility.



CAMBRIDGE AUDIO CD4SE 1998 £200
A touch soft in the treble and tonally light, but outstanding in every other respect.

SONY TCD-8 DATMAN 1996 £599
Super clean sound makes this an amazing portable, but fragile.

LINN KARIK III 1995 £1775
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

NAI/M CDS 1990 £ N/A
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

MARANTZ CD73 1983 £700
A lot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical.



MERIDIAN 207 1988 £995
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

SONY CDP-R1/DAS-R1 1987 £3,000
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

CAMBRIDGE AUDIO CD1 1986 £1500
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



MERIDIAN MCD 1984 £600
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100 14x4 never sounded so good, until the MCD Pro arrived a year later.

SONY CDP-701ES 1984 £890
Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

YAMAHA CD-X1 1983 £340
Nicely built 16x2 machine with a very sharp and detailed sound, sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

SONY CDP-101 1982 £800
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



ANALOGUE RECORDERS

AIWA XD-009 1989 £600
Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



SONY WM-D6C 1985 £290
Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.

PIONEER CTF-950 1978 £400
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

YAMAHA TC-800GL 1977 £179
Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

SONY TC-377 1972 £N/A
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards.

REVOX A77 1968 £145
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

COMPACT DISC TRANSPORTS

ESOTERIC PD 1997 £8,000
The best CD drive bar none. Brilliantly incisive, ridiculously over-engineered.

TEAC VRDS-T1 1994 £600
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

KENWOOD 9010 1986 £600
The first discrete Jap transport was beautifully done and responds well to re-clocking.

DACS

DCS ELGAR 1997 £8500
Extremely open and natural performer, albeit extremely pricey - superb.

DPA LITTLE BIT 3 1996 £299
Rich, clean, rhythmic and punchy sound transforms budget CD players.

CAMBRIDGE AUDIO DAC MAGIC 1995 £99
Good value upgrade for budget CD players with extensive facilities and detailed sonics.

PINK TRIANGLE DACAPD 1993 £ N/A
Exquisite, the warmest and most lyrical 16bit digital audio we have ever heard.

QED DIGIT 1991 £90
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

CABLES

MISSING LINK CRYO REFERENCE 2008 £495/0.5M
High end interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

TECHLINK WIRES XS 2007 £20
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

VDH ULTIMATE THE FIRST 2004 £250
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



WIREWORLD DASIS 5 2003 £99/M
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for 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.

vinyl section

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PRO-JECT THE CLASSIC TURNTABLE 87
Taken for a spin by Noel Keywood.

AUDIOPHILE BOOK 93
Paul Rigby reviews 'Hello Goodbye', The Beatles in Tokyo 1966 - a look back at the Fab Four's 1966 Japanese tour.

news



ORNETTE
On Music on Vinyl (www.musiconvinyl.com) is Ornette Coleman's 'Chappaqua Suite' (1965), an unused film soundtrack to the debut feature by Conrad Rooks, including plenty of improv with Pharaoh Sanders plus a strong rhythm section. Farsighted and imaginative.

NOSOUND

Combining prog, post rock and ambience, Italian-based Nosound has released 'Scintilla' (Kscope; www.kscopemusic.com) with overtones of both Porcupine Tree and Steven Wilson. Featuring rich production values with often sensitive, slightly balladic foundations to its harder rock outbursts.



MAMMOTH WEED WIZARD B****D

That's the name of the band. I haven't made it up. 'Noeth Ac Anoeth' was the name of the debut LP. Only nine months later, the experimental Welsh (Wrexham, actually) doom outfit are back. 'Y Proffwyd Dwyll' ('The False Prophet') is muddy, syrupy, dragging your feet stoner rock that feels like it might just grind to a dead stop but never quite gets there. The female-fronted vocal is a genius addition, though.



MUCHO MELUA

Katie Melua has a new release. 'In Winter' featuring the Gore Women's Choir. A warmly presented, richly produced album with almost celestial harmonies that blends traditional music with heartbreaking tales of life in the Soviet Union and civil war in Georgia including the odd hymn and cover (i.e. Joni Mitchell's 'River'). A magical LP.




STARDUST COWBOY
He's been performing for five decades, from his early appearance on Rowan and Martin's 'Laugh-In' to his debut 1968 release of the single 'Paralyzed' the Legendary Stardust Cowboy is now back with a double album anthology of well known songs and rarities on 'Launch Pad Favorites' (Munster; www.munster-records.com). Time to hoot and holler, chaps.

MEATLOAF IS BACK!

And with a new album called 'Braver Than We Are' (429; www.429records.com) produced by Jim Steinman. Theatricality is meat and drink for Steinman and that Broadway-esque feeling is here in this old-time rock opera. Meatloaf is a vocal shadow of his former self but he works his weakness into an appealing human frailty. Despite the album's issues, both men pull it off.



NINJA TUNE

New via the Ninjas (ninjatune.net) is The 'Bullnose Step EP' from Bogus Order, the same guys who created 'Zen Brakes Vol. 1'. It's been twenty-six years since their last release!

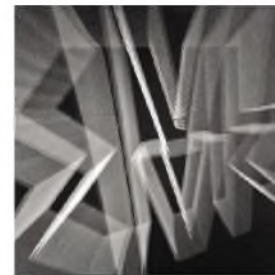
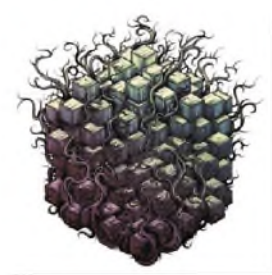


JAZZCENTRIC

From Gearbox (www.gearboxrecords.com) is Dexter Gordon's 'Fried Bananas', recorded live in 1972 at Heemsckerk Societies Progress, Holland featuring the title track, 'Body and Soul' and 'The Panther'.

Illustrated by the images of French photographer, Jean-Pierre Leloir are two releases from Jazz Images (www.discovery-records.co.uk). The first Art Blakey and the Messengers' 'Moanin' (1958), the best studio album he produced with his best band. Also look out for Sonny Rollins' 'Saxophone Colossus' (1956) an incredible disc, originally released on Prestige and packed with, again, arguably his best ever work.

Dinosaur's 'Together, As One' (Edition; www.edition-records.com), the third album from leader and trumpet player/composer Laura Jurd plus friends. This is very good indeed with innovative rhythmic patterns and combinations. Miles would be proud.



...AND FINALLY

Watch out for Marianne Faithfull's 'No Exit' (www.ear-music.net) that documents the tour that opened after the 2014 LP release, 'Give My Love to London' that is, broadly speaking, full of drama, ferocity and no little humour.

Jonathan Ulriel Saldanha's 'Tunnel Vision' is a re-edit and remastered version of the original avant-garde John Zorn-produced soundtrack scored and recorded for the experimental sci-fi film 'Tunnel Vision' (*Silo Rumour*; <http://www.silorumor.com>). Bass, beats, unhooked melodies and drifting ambience. It's an electronic duvet.

Tesseract's 'Enrai' is the UK prog band's bonus EP disc to clip onto their album, 'Polaris'. The vinyl version is a stand-alone purchase while the CD version arrives as part of a double disc package with the original album. This four-tracker features four re-worked tracks: 'Survival', 'Cages', 'Tourniquet' and 'Seven Names'.

Up and running since 2009 and from Australia, 'Civil Civic' (www.civildcivic.com) are described as an instrumental post-rock/electronic rock band although their new album, the Test, resembles trance-based dance music with attendant hanging crescendos ('The Hunt') and insistent beat and fairy lights-infused synth ('The Mirror'). More a B-movie soundtrack.

From the Pied Piper stable (www.acerecords.com) is a Detroit, Northern soul compilation featuring the likes of September Jones, Nancy Wilcox and Tony Hester.

Apothek's self-titled debut LP (*Propeller Recordings*; www.propellerrecordings.no) offers fragile, low-fi, low key, spacious songs with fragile vocals that sit on equally fragile electronic fripperies. It's fragile, ok?

Mixing jazz fusion with prog elements is Seven Impale with 'Contrapasso' (www.karismarecords.no) infused with edges and angles with theatrical arrangements that send the music into ten different directions at once. Exhausting but rewarding if you stick with it.

From Soccer96 come 'As Above So Below' (*Slowfoot*; www.slowfootrecords.com), a synth and drums duo with underlying dance rhythms which reminds me of a swathe of 90s commercial dance outfits who wanted to be adored on the beaches of Ibiza and yearned for a video show on Top of The Pops.

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Audio Research US17sa, near mint boxed £4.5k new	x/d 2499	Creek PBH9SE Phono stage, excellent starter unit	used 79	Dynaudio Focus 220, excellent boxed	used 1199
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Devialet 400 combo, mint boxed one owner	used 6499	Linn LP12, Basik Plus, excellent condition, boxed	used 699	Kef Q100, near mint boxed	used 299
Devialet 120, mint boxed, our demo unit	x/d 2749	Linn LP12, Cirkus, Ekos, Lingo, Traika, boxed in black	used 2499	Kudos C20 (later version) excellent in oak	used 1299
Devialet 250, mint boxed, our demo unit	x/d 7499	Linn LP12 Majik, Kael, Akita 2, Hercules, DV17d3	used 2999	Kudos C20 excellent boxed in sycamore	used 1249
Esoteric CD3/A03, pre/power ex demo boxed	used 8999	Linn LP12 Cirkus, Khan, Solo, Lingo 3, PU7 tonearm	used 3249	Kudos C30 excellent boxed in roseanot	used 1699
Graaf GM50B Mk2 Integrated, ex dealer demo	x/d 2999	Linn LP12 Cirkus, Lingo, Ekos, Trampolino, cherry plinth	used 2499	Laema Xandia Mk1 in black, REDUCED	new 1999
Haed Obalisk PM Monoblock pair	used 1299	Lyra Skala, excellent boxed	used 2249	Le Contoure Mobile 160, boxed, REDUCED	used 1399
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KR Audio VA320 Antares	used 1899	Michell Focus One with Linn Basik LVV	used 299	Martin Logan Quest, superb sound, REDUCED	used 1199
Krell KAV400xi, excellent boxed	used 1199	Michell Hydraulic Reference, Fluid arm	used 899	Martin Logan Prodigy, excellent	used 3499
Lector VFI 70L, 70watt Hybrid Integrated, excellent!	used 649	Naim Stagline S, excellent	used 199	Martin Logan Ethos, near mint boxed	used 3499
Levinson 331 stereo power excellent boxed	used 1999	Nottingham Analogue DAIS, near mint, ex demo	x/d 3999	Martin Logan Vista, excellent boxed	used 1399
Linn Akurate 4200, Dynamik PSU, boxed	used 2499	Origin Live Illustrious Mk2 Tonearm	used 799	Martin Logan Vantage, excellent boxed	x/d 1599
Marantz PM80, typical heavyweight integrated	used 299	Project RPM 10 turntable with arm and platform	x/d 849	Martin Logan Vantage, active bass, REDUCED	used 1999
Marantz PM7001, great entry level integrated	used 179	Project Dabot Carbon, near mint REDUCED	x/d 249	Martin Logan CIS Anniversary, cherry	used 2999
Marantz PM60100SE, excellent bargain integrated	used 99	Rega Fono, excellent entry level MM stage	used 119	Monitor Audio GS10, good condition	used Due in
McIntosh MC275 Power Amp, near mint boxed	used 3000	Rega RP3/Elys 2, white boxed, just a few months old	used 399	Monitor Audio GR60, vgc+	used 599
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NAIM NAC82, excellent boxed	used 899	Transfiguration Lemper W, great condition.	used 699	Sonus Faber Elipsa, superb boxed, REDUCED	used 5699
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NAIM NAP250 upgraded DR 2012, nr mint boxed	used 2999	VDH Concor M/C cartridge as new boxed, REDUCED	new 1899	Sonus Faber Venere, various models	x/d Call
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Pro-Ject's latest basic belt-drive turntable comes with an Ortofon Silver MM cartridge. Noel Keywood takes the combination for a spin.

New Classic

The Classic aims to offer a simple belt-drive turntable, stripped down to bare essentials but of good basic build quality and – by suggestion – sound quality.

This is a two speed unit, 33rpm and 45rpm, supplied with Ortofon Silver MM cartridge for a not inconsiderable £899.

The Classic is aptly named

because it uses a classic European approach to turntable design that is different to the Audio Technica AT-55LP and Reeloc Turn 3 turntable packages I reviewed recently, made in Taiwan, of the Japanese design school – more of which as we go along.

Instead of a lightweight cast alloy platter with d.c. servo motor that allows push-button speed change (Taiwan), the Classic uses a large

machined alloy platter that is much heavier and it is damped around its rim by a TPE polymer material to prevent platter ringing.

Pro-Ject say they use a d.c. speed regulated motor and our review sample did rotate at exactly the right speed, which is rare when simple synchronous a.c. motors are used – as common on UK turntables and those generally of earlier vintage. All

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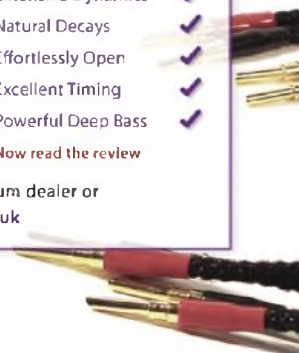
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the same, speed change is manual: you must remove the platter and move the belt on a stepped pulley – inconvenient. An external power supply unit (15V, 1.6A) supplies low voltage d.c. to the wooden plinth so mains earthing is unnecessary and not used, eliminating hum loop problems. A single earth line attached to the good quality phono cable supplied earths back to the amplifier. There is, with this arrangement, no hum inducing a.c. on the turntable at all and no hum-inducing earth loop so it is absolutely hum free – and will be in any set up.

The bearing supporting the platter is very accurately machined Pro-Ject say, and this has a big impact upon speed stability because it limits random precessing. Under test the deck was reasonably good here, if not as speed stable as the Taiwanese



The arm is made from wrapped carbon fibre, but the rest has no securing clip and the finger lift on the headshell is flat and difficult to grip.

turntables. As common with belt-drive there was random variation, in spite of platter weight.

The plinth is a relatively complex construction, having a metal/MDF sandwich floating on TPE again to isolate it from outside noise and vibration, if not footfall etc. It does not float on springs like Thorens, Linn et al so a firm stable surface is needed for mounting all the same – and a wall shelf is often good for this. Three adjustable feet allow for levelling but the user instructions fail to mention this completely. On top sits a thin felt mat. To start the platter spinning a small rocker switch at front left on the plinth has to be pressed and it feels solid enough.

The arm is made from a carbon fibre wrapped mat on an alloy tube for rigidity, and incorporates a flat head shell with cartridge adjustment slots. The head shell is not removable

and this again is European preferred design practice – see Rega, SME – where the Japanese are happy to offer a bayonet fixing removable headshell that is – arguably – less rigid, if more convenient.

I've used Pro-Ject's arm many times in the past and my big issue with it is the flat finger lift that is too low and close to the LP surface to be easily usable, as well as too slippery to provide a sure grip. I prefer to hand cue my SME 312S because it makes track selection faster and more assured than CD and I could not do it with this arm. Those that prefer to use a damped lift/lower may not be so concerned about this issue.

The lift/lower is damped but rudimentary in its feel and action because of poor build quality; the anti-skate mechanism is similarly cheap in build, using bent wire and



The anti-skate mechanism comprises a piece of bent wire with weight suspended by nylon thread.

wire to lock the arm down when needed. A nice big and heavy acrylic dust cover is provided that moves on friction hinges. Pro-Ject say remove it for best sound but this isn't so easy, nor is it necessary; heavy covers like this attenuate sound well; whether internal modal resonance is worse, as Pro-Ject seem to think, is arguable.

The arm pillar can be raised/lowered to adjust cartridge vertical tracking angle, and rotated to adjust cartridge azimuth so the stylus sits upright. Lateral tracking error and distortion are minimised by sliding a cartridge forward or backward in the headshell, as is common, and Pro-Ject provide a protractor for this.

The turntable comes with a large bag of bits and takes quite a lot of set-up, making it more for the dedicated enthusiast than the casual or less technically engaged user. It is here that The Classic is weakest: set up is a long process and the unit isn't especially user friendly or satisfying to use when set up. The fiddle factor is high and conspicuous engineering quality in some places low. Others do it better.

Overall, the Classic is well-built

nylon line; Rega do it far better than this as do the Taiwanese/Japanese.

The counterweight is uncalibrated so an external gauge must be used to set tracking force; Pro-Ject provide a simple one, a pivoted plastic plate. The arm rest has no securing arm clip; I used a piece of



Pro-Ject provide a good quality signal cable with integral earth wire. Because there is no mains earth connection and no a.c., hum is eliminated.

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Pro-Ject fit an Ortofon 2M MM cartridge that has a bright sound.

and finished, except for the crucial parts a user interacts with – the lift/lower mechanism, bias adjust system and arm carrier could all be made more solid in their feel and slicker in their action. OK, the budget goes into other parts that affect sound quality and this is the compromise the Classic offers.

Finally, Pro-Ject fit an Ortofon 2M Silver cartridge that in itself is good, like all Ortofons, but it did not especially suit the tonearm I felt as I'll explain below.

SOUND QUALITY

I connected The Classic to an Icon Audio PS3 valve phono stage, to complement the Ortofon Silver cartridge that, under measurement, had a slightly raised upper midband. Since most MMs have a small amount of loss here I knew the Silver was going to sound bright in its balance, so the Icon would gloss it a little as well as adding some depth. Having a volume control, it was connected to our McIntosh MC152 power amplifier and Martin Logan ESL-X hybrid electrostatics. OK, not the sort of system it would normally be paired with, but I need an analytical system to reveal sonic characteristics.

This system wasn't sufficiently balanced, it turned out, the brutal insight of the MC152 in combo with electrostatics being a bit too much, giving an edgy upper midband from the arm/cartridge combo. To alleviate this I connected up an Icon Audio SE30 SE valve amplifier instead and we were in business, after a 60 hour cartridge run-in.

I mention all this to illustrate that in sonic terms The Classic is distinctive and system matching critical as a result. The arm is lively (see Measured Performance) and has a bright-ish presentation. The Ortofon Silver is not an especially good match; I would fit a Nagaoka or perhaps Audio Technica MM cartridge, both of which have a gentler presentation.

The Scissor Sisters 'Take your Mama Out' is a track on the edge

of coarseness in its recorded vocals, if instrumentally quite dynamic. The Classic managed well in terms of stage depth and dynamism but vocals bordered on edgy whilst timing was good but not metronomically tight.

Strings in Mozart's 'Symphony 35' were a tad forward but again the overall presentation was big and spacious in best vinyl fashion. The Classic painting up a generously large and full-bodied sounding orchestra in front of me with well-lit and full-bodied images.

With edgy recordings, like The Zutons' 'Tired Of Hanging Around' The Classic's slight forwardness didn't help toward an easy sound, but with smoothies like Mark Knopfler's 'Kill To Get Crimson' and Kate Bush's 'Aerial' the turntable came over as insightful, rather than edgy.

The simply arranged, but well balanced and acoustically open sounding recording of Jackie Leven singing 'Some Ancient Misty Morning' had Jackie coming over as edgier than I know him in this recording, whilst

the overall sound was generously large, free of colour, open and spacious.

CONCLUSION

The Classic has conspicuous strengths – but also weaknesses. The turntable is sonically well sorted, but the arm is a poor user experience all round; it also measures poorly and is sonically undistinguished. Ortofon's 2M Silver does a good job but its bright balance is un-vinyl like and not what some listeners might expect; it is accurately forthright.

Overall, The Classic delivers a sound with depth and freedom from



Speed change is manual: the belt must be moved between pulley steps.

colour, but it was also a little edgy, temporally soft and an unattractive user experience. I liked the turntable, but had strong reservations about the arm/cartridge combo.

MEASURED PERFORMANCE

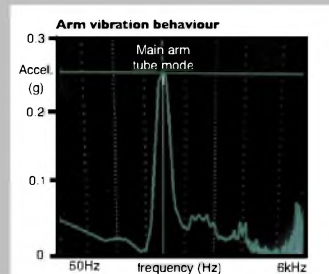
Speed had been accurately adjusted, the platter spinning at exactly 33.3 rpm. Variation about this speed was fairly well controlled, measuring 0.15% (wow). There was variability, with random large variations about the mean figure, the Wow&Flutter meter needle swinging from 0.1% to 0.2% as is common with belt drives. Better is possible, but as budget belt drive goes The Classic was respectable in this area of performance.

The arm has a strong tube resonance at 300Hz, a relatively high frequency, around 200Hz being common for alloy tubes. This means it is stiff, but rings strongly and may have a slight patina to its sound.

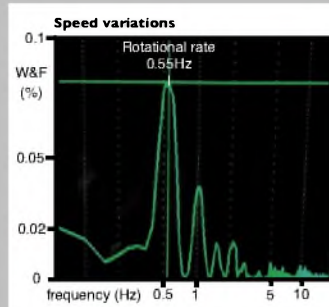
The Classic gave a fairly typical set of measurements for belt drive, the arm being undistinguished. **NK**

Speed error	0%
Wow	0.15%
Flutter	0.1%
Total W&F (weighted)	0.08%

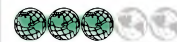
ARM VIBRATION



WOW & FLUTTER



PRO-JECT THE CLASSIC TURNTABLE £899



GOOD - worth auditioning

VERDICT

Big, spacious sound, but edgy at times. An unattractive user experience compared to rivals.

FOR

- big, open sound
- hinged dust cover
- sturdy plinth

AGAINST

- flimsy arm carrier
- poor finger lift
- manual speed change

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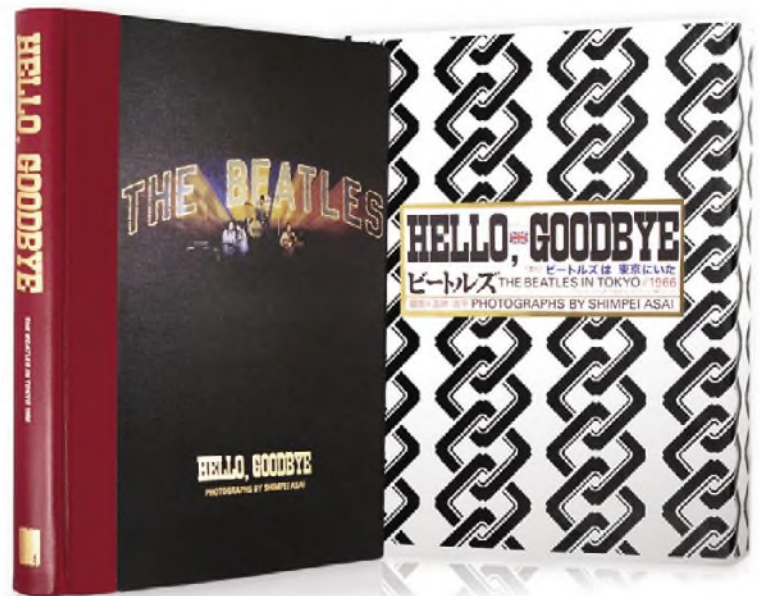
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Beatles in Japan

A lavish new book gives a photographic insight into The Beatles in Tokyo during their 1966 visit.

HELLO, GOODBYE: THE BEATLES IN TOKYO, 1966
Genesis Publications
Price: £265



A book about a place and a time and the occasion that The Beatles became the first rock act to perform at Tokyo's Budokan. It was a decision that sparked controversy and arguments amongst Japan's traditionalists. The Tokyo period was also a critical one for the group. Apparently, from this location, the band sent a telegram to EMI with the name of their new album, 'Revolver'.

The core of the book, which tracks the band's brief time in the country, emerges from the man who photographed their stay, Shimpei Asai. The only photographer to be granted official access to The Beatles in Tokyo, his photographs have remained unknown to those living outside Japan until now.

"I thought of several approaches that I could take" he explained. "And finally settled on the photo essay method. I would point my camera at The Beatles as well as the season and climate, the moisture and temperature of Tokyo...as well as scenes of them performing, the things they saw and touched. I was allowed only 100 hours to shoot them and that included the time when they were sleeping. It was a beautiful story, though".

The essay decision was inspired because the book is able to project the atmosphere of those times very

well indeed. From the security guard standing quietly, thinking his own thoughts, letters on the floor of the band's hotel room patiently waiting to be opened, a welcome gift for each Beatle wrapped in paper and ribbon, spent Beatles cigarettes in an ash tray, towels thrown adjacent to a sink, open hotel doors looking from the room into the empty corridor. This scene is one of unusually gentle calm, away from the frenetic Beatlemania that the band were attempting to assimilate.

That sense of contemplation is also illustrated and reinforced with pictures of art materials that allowed the band to experiment with creativity of a non-musical nature, as well as a supply of traditional Japanese instruments that members of the band are seen playing.

Despite many areas of the book featuring page-spanning images, there is plenty of text to read too (accompanied by a Japanese translation under the English original text). And, despite the many images of the band actually performing, it's the sense of quietude that really hits you from the featured photographs. Everyone finally has time out to... well, think. A rare commodity at that time. As Asai explained "It seemed to me that each of them was caught upon his own thoughts. I think they must have felt so many things during this period. And they began thinking

about all the experiences they'd had that normal people couldn't have known. They felt these experiences not from the outside but from the inside".

This book offers a rare chance to get inside Beatlemania to a point that even the Beatles were unfamiliar with. A place of calm.

This limited-edition, 205 page book spans 250mm x 300mm. Hand crafted and quarter-bound in leather, each book is signed by Asai. The cover is black buckram, silk-screened printed and gold foiled. Each copy arrives in a slipcase printed with a traditional Japanese kimono pattern and a logo inspired by the tickets from the 1966 shows. You'll also find a ribbon bookmark with a facsimile ticket included. The first 350 copies of the deluxe edition have already sold out. This edition takes the numbers from 351 to 1966 to commemorate the year of that Tokyo visit.

Go to
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CROFT EPOCH Elite valve pre, inc. MM phonostage, excellent, £300 ono. Musical Fidelity X-Can V-3 headphone amp, £125 ono. Albarry MCA 11 MC step-up, boxed, £250 ono. Tel: Mick 07515 128 910

DENON DNP-F109 receiver, £95 ono. Denon DCD-F109 CD player, £95. Black Box speakers, £95, brand new, never used, boxed. Tel: 01453 73 1396

SPENDOR BC1 speakers, rosewood with stands. Technics SL-1300 Direct Drive turntable. Excellent condition. Offers. Buyer collects. Essex. Tel: 07960 865 332

2 NEW valve amps. Boyuu Model NS-11S 12w. All excellent condition £125 each. 2 new Madison hybrid integrated amps Model MAD-TA-10-BT 25watts, all in excellent condition £110 each. Tel: 075355 96822

CYRUS B XPD QX CD.T transport (11 months old), both boxed, offers. Thorens TD321. Linn arm, no marks, off board power supply. Model looks great. Offers please. Tel: Phil 07973 42 62 91

MONITOR AUDIO Silver 6 floorstanding speakers, black oak, £650. Bronze 5 floorstanding speakers, black oak, £375. Arcam Alpha 9 CD player, £220. Tel: 01943 467 859 (West Yorkshire)

MITSUBISHI MICRO system, LTVS turntable. MTD4 tuner, MTD4 cassette, MP04 pre-amp, MA04 power-amp. Good condition. £250. Leak Stereo 30 Plus amplifier for spares, £30. Tel: 074255 47118

PAIR LOWTHER Bicos 2000 speaker cabinets finished in black lacquer in good condition. Fitted with four EX2 speakers. Three not working. £340 ono. I need the space. Tel: 01522 682 926

I HAVE over 40 original drivers from Bowers & Wilkins (including DM604), Mission, PMC and Dynaudio. Please Email me on fatlizzy@gmail.com for full list.

QUAD 303 power amplifier. Quad 33 pre-amplifier. Quad FM3 tuner. All in full working order, some surface marks, wear on volume knob, all cables £500. alexandrosfoster@hotmail.com 01332 551656 mob 07764 241870

TECHNICS SL-1600 direct drive turntable. Automatic Ortofon WMS 3 mark II cartridge. Excellent condition. Minor blemishes. £200. alexandrosfoster@hotmail.com 01332 551656 mob 07764 241870

NEAT MOTIVE I floorstander. Loudspeakers. Cherrywood veneer. excellent speakers / sound can dem, cost £1400.00 £600 ovno. London 07957384795 Evan

WANTED FAULTY or non working Quad 44 preamp, later model preferred. Cash paid. Contact Mike 01758 613790.

GARRARD 401, Rega RB300, Goldring 1042 with plinth/cover, great sound and condition, £1499 ono. Power supply for Class A amps, for amps of around 15-20W, £300 ono. Call 0207 499 8729

TRANSPARENT ULTRA mm2 balanced XLR interconnects. 1 metre length. Mint condition. Price new: £1,841. Sale price: £900 ono. Photos. London. Tony. Email: yatestherapy@gmail.com

AUDIO RESEARCH CD 5. They don't come much better than this. Price new: £5,500. Sale price: £1,700 ono. Including Nordost power cable. Photos. London. Tony. Email: yatestherapy@gmail.com

FULL MONTY Tom Evans Pioneer A300R blue led light amplifier with copper binding posts, Electrofluidics loud-speaker cable, Eikos interconnect £550. Wharfedale E.30 loudspeakers and Harmon Kardon HK630 original twin powered receiver. Exc sound. Offers. Tel: 07432720033

MUSICAL FIDELITY M6i integrated amplifier in silver, mint condition, less than 50 hours use with all packaging, happy to demonstrate, pictures on request £1100. Tel: 01902 884694. Email: jukey39@yahoo.co.uk

AVI DUO speakers brand new build in original cabinets with extra special crossovers. Any dem: must be heard! Text your e mail for photos £600 07793749178 London

AVI S2000 MC Reference CD Player. Very tidy. New Laser fitted and service warranty. £300 + carriage. Tel: 01275 872777 (N Somerset)

JBL STUDIO 530 standmount speakers in black £199. XTZ 99.36 Floorstander speakers in black piano lacquer £250. Emotiva Stealth Pro dac/preamp £150. All with original packaging. Tel: 01847 892081.

WILMSLOW AUDIO Home Studio Monitors. D2905/930000 tweeter (£100). Smooth and detailed. Volt BM2208 bass (£150). Tuneful bass and excellent midrange. 345 Wide X 270 Deep X 510 mm High. Black satin finish. VGC. Crossovers separate. Offers. Can Demo. (Nottingham). 01159 877 567, 07783 327 689, Email: spinkray.rs@gmail.com. Instructions/Receipts. White bespoke Marble stands 470mm high. Offers.

CANADIAN GUTWIRE Synchrony 3 metre length speaker cables. Superb - totally new condition. £700. (Synchrony Interconnects available separately). Email: stephen.adolphus@gmail.com. Tel: 07787 574784.

GARRARD 301 transcription unit comprehensively refurbished and rebuilt by the Classic Turntable Company. It retains its original paint finish which is in wonderful condition. Offers invited. Tel: Tim 07796 930305

GRAHAM SLEE Diamond headphone amp, £200. TD 160-S turntable, SME cutout, £100. Tel: 01926 313 027

NEXT MONTH MARCH 2017 ISSUE

QUAD VA-ONE DAC AMP

You've seen tiny and attractive little valve amplifiers before perhaps, from unknown manufacturers. Here's the latest from Quad, who have a long background in producing quality valve based products alongside a large solid-state range. They know how to integrate the two and recently introduced the lovely Quad VA-One. It is a 15 Watt per channel desktop valve amplifier with Bluetooth link, remote control and digital inputs, including USB for computers. Don't miss our informed review next month that uses measurement to delve deeply.

Also, we hope to bring you –

AUDIOVECTOR QR3 SPEAKER

AUDIO RESEARCH DAC9

YAMAHA MUSICCAST R-N402D NETWORK RECEIVER

COWON PLENUE S-PS HI-RES PLAYER

LUXMAN EQ-500 VALVE-BASED PHONO STAGE

NEAT IOTA ALPHA LOUDSPEAKERS

...and much more.



This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, we cannot guarantee that all products listed above will appear.

**PICK UP THE MARCH 2017 ISSUE OF HI-FI WORLD ON SALE JANUARY 30TH 2017,
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MARCH 2017 - 9TH JANUARY

APRIL 2017 - 6TH FEBRUARY

STING

TEN SUMMONER'S TALES A&M



"There were no underlying themes here just quality songwriting full of melody and variation"

Before this album was released, the previous two LPs were jazz-infused pop outings which were rather low key in general terms. 'The Soul Cages', the previous album release, was one of those releases: a relatively dour album.

"I just felt that 'The Soul Cages' had served its purpose actually and that I had exorcised a few ghosts and didn't really feel he need to do it again and I wanted to make a record that let me get back to writing songs just for fun" commented Sting. "That's why I began the whole thing all those years ago - writing songs for fun, and I have to say that's exactly what happened. I was in a very good mood, I was with my band and I was writing songs to amuse them, to amuse myself, to amuse my family and it kind of makes me smile when I listen to the record".

This release was pop-centric. In fact, it was arguably Sting's first true pop release since he'd left The Police. There were no underlying themes here, no concepts, just quality songwriting full of melody and variation and, well blow me down, jokes! Oh and a little bit of pretension (well, Sting has always been unable to control this side of his character). But only just a little bit, mind you. Songs such as 'If I Ever Lose My Faith in You', the swinging 'It's Probably Me' and the balladic 'Fields of Gold' are standouts on this LP.

Sting himself talks about the freedom and the happiness he felt at the time.

"In 1992 we moved the family out to the country, to a run-down manor house built in the sixteenth century that needed some care and attention. The gardens were beautiful, and walking in them was like walking into a dream. It was called Lake House. I felt inspired to write and, for the first time in years, with a genuine spirit of happiness. There were no grand concepts, no plan, except to have fun telling stories in as many diverse styles and moods as I could think of. It is this carefree spirit that pervades the album and helped it to become one of my most popular records. The title was a mischievous conceit linking my surname, Sumner, with the scurrilous character

in Geoffrey Chaucer's Canterbury Tales".

The album can now be found within a new collection called 'The Studio Collection' which includes eight A&M Records albums across eleven LPs: 'The Dream Of The Blue Turtles' (1985), '...Nothing Like The Sun' (1987) (double LP), 'The Soul Cages' (1991), 'Ten Summoner's Tales' (1993), 'Mercury Falling' (1996), 'Brand New Day' (1999) (double LP), 'Sacred Love' (2003) (double LP) and 'The Last Ship' (2013) – with both 'Brand New Day' and 'Sacred Love' available on vinyl for the first time ever.

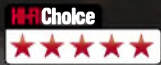
All of the included LPs appear in exact replicas of the original artwork presented in a slipcase package. With brand new vinyl masters cut at the legendary Abbey Road studios to ensure exceptional audio quality.

This album apparently has not been remastered which, to some, will be a questionable subject and proof-positive of the money grabbing antics of the major labels. Never mind prompting caution in terms of buying the associated box set.

Before you give up on this release, don't forget that the sources have received a new cut at Abbey Road. Now remastering is very important and can transform the sonic qualities of any record but the cutting process is just as important and often, criminally, ignored. The cutting engineer can make or break any album. He can present the hard-won detail to you in a transparent and clear manner or he can add a veil to all of the mastering engineer's hard work. On this basis, then this edition deserves a sound test. And this cut is a complete triumph! But would you really expect anything less from Abbey Road? The cut is quiet which allows you to increase the gain on your pre-amp while glorying in the continued silence from the rear of the soundstage. Dynamically, the music has a varied brilliance, allowing low key secondary percussion to be heard just as clearly as Sting's textured, up-front vocal performance. Meanwhile, the layered detail presents a rich and busy soundstage that also offers a pleasing depth, adding to the 3D overall effect. In short, then, the new cut was most definitely worth it.

PR

Z Series



The composite sandwich construction of the Z Series ribbon tweeter ensures it is robust enough to handle high-powered amplifiers, while its detail is smooth right up to the highest musical overtones beyond the limits of human hearing.

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IN TRACKS I'VE PLAYED A 1000 TIMES"

- KEN KESSLER / HIFI NEWS

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