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REVIEWED

Opera Mezza 2012 Loudspeakers

Parasound P5/A23 Pre/Power Amps

> Avid Sequel SP Turntable

SVS SB 13-Ultra Subwoofer

> NAD C 546BEE CD Player

Sennheiser Urbanite XL – Headphones

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Bad web reviews... where are they?

Australian Hi-Fi Magazine has been a whipping post for thousands of audiophiles over the nearly half-century it's been around, but I have to say that now we're big-time on the internet, as well as in print, the lashings are becoming more frequent, and despite many years in the editor's chair, my skin is no thicker.

You won't be surprised to learn that of all the criticisms levelled at the magazine, the single most common is that we don't publish any negative reviews, and that this is obviously because we don't want to upset our advertisers. Pure internet hi-fi publications, on the other hand, are apparently paragons of virtue... and most especially the ones that don't accept advertising. 'They tell it like it is,' I am emailed by various correspondents. Firstly, we do publish negative reviews, which I've listed in the past, and am not going to do so again here. Instead, I'd like to say that I have yet to see a negative review published by any of the so-called 'independent' internet operations that are apparently able to publish what they like because they're not beholden to advertisers, nor have I ever had my attention drawn to one by any of my correspondents. Am I wrong? Then please use the email address below to send me the links to all those negative reviews... it can't be that hard, there should be hundreds of them out there. Call me a cynic, but I'm not expecting them a deluge!

The second most common criticism of Australian Hi-Fi Magazine's equipment reviews is, contradictorily enough, that we make too many negative comments about features and/or controls that are missing or don't work properly or are badly-positioned, too many negative comments about poor-quality manuals, and too many negative comments about build quality. So, from where I see it, we're simultaneously being castigated for not publishing any negative reviews at the same time that we're being castigated for making negative comments in those self-same reviews. I think I'm missing something here...

Another widely-held misconception is that Australian Hi-Fi Magazine will only review a product if the importer or distributor is also an advertiser. Like all great rumours, this one is also completely and demonstrably false. So why don't you see some brands in the magazine? Some importers/distributors/ manufacturers don't want us to review their products, because they don't want to run the risk getting a bad review. Others don't want us reviewing their products because they don't have Australian electrical safety approval for them... which of course we'd mention in the review, which would get them into hot water with the authorities. And, funnily enough, a few won't loan us products for review because they say that because they have no intention of ever advertising in the magazine, they don't think they should benefit from one of our reviews (which cost them nothing). But my all-time favourite 'bad review' story concerns a certain managing director who telephoned and spent five minutes abusing me about a bad review before I could get a word in edgewise. 'Hang on Alex [not the famous one],' I said, 'why are you complaining...the product reviewed isn't one of yours.' 'No it isn't,' he replied, 'but bad reviews make the whole industry look bad, so I don't greg borrowman [hifi@nextmedia.com.au]

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CONTENTS

20 OPERA MEZZA 2012 LOUDSPEAKERS

EQUIPMENT REVIEWS

PARASOUND

AVID

For use in a smaller room or as a near-field monitor, Opera's Mezza 2012s would be a wonderful choice, with superb midrange and highs and imaging that's amongst the best we've heard.

24 PARASOUND P5 & A23 PRE & POWER AMPLIFIERS

Designed by none other than the famous John Curl, of Mark Levinson fame, the Parasound P5/A23 duo gives you heaps of power and incredible performance at a ridiculously low price...

36 AVID SEQUEL SP TURNTABLE

'A level of performance that I would not have believed possible unless I'd heard it with my own ears...' says reviewer Ernest Denman.

52 SVS SB 13-ULTRA SUBWOOFER

Maybe there is another subwoofer out there that offers an equally wide range of options and adjustments but we've yet to hear of it. This is a top-shelf subwoofer at a bottom-shelf price...

58 NAD C546BEE CD PLAYER

NAD hit on a winning formula for its designs more than forty years ago, but now under new ownership, its products are more exciting than ever before.

66 SENNHEISER URBANITE XL HEADPHONES

Reviewer Jez Ford says he'd take the cool industrial Urbanite XL over the studied luxury aesthetic of the Momentum any day. But would you?

C 546

10 SOUNDBITES

FEATURES

Exposure 1010S2-D, Isotek Evo3 Venus, YG Acoustics Carmel 2, Magico S7, Extrema Evolution, Elac AirX, Legend Acoustics Kurre 8, Sunfire XTEQ, Sony ZX Series, Q Acoustics 3000 Series, Auralic Gemini, Golden Ear Triton Five, Alpha Design Labs H128, Audio Research Reference 250SE Upgrades, Arcam Solo Bar & Sub, Harbeth at Class-A Audio, new Bose QuietComfort 25 versions and much more...

65 OBITUARY

David Graebener was a pioneer in the field of planar magnetic loudspeakers and also the founder of Bohlender-Graebener Corp. (now BG Radia).

68 MAGNETIC CELLULOSE SPEAKERS

Swedish researchers have built the world's first magnetic cellulose loudspeakers. They don't require a large permanent drive magnet, nor do they need a moving voice-coil.

5 EDITOR'S LEAD-IN

Greg Borrowman reckons he's yet to see a negative review published by any of the totally fear-free independent internet operations and invites readers to submit their contributions.

70 JAZZ TRACK

NUSI

This month, John Shand auditions new releases from Joseph Tawadros, Paul Grabowsky, George Lewis, the Java Quartet, Tiny Hearts and Melissa Oliveira.

BLU-RAY REVIEWS

Waddy Wachtel plays Jimi Hendrix's guitar on the movie Jimi: All Is By My Side, but it's the very talented Holly Hunter who plays the piano on Jane Campion's film of the same name.

continued overleaf



May/June 2015 Volume 46 Number 3

Editor: Greg Borrowman hifi@nextmedia.com.au

Art Director: David Chew

Reviews Editor: Edgar Kramer

Photography: Oliver Delprado

Contributors: Stephen Dawson, Lesley Swan, Jutta Dziwnik, Nada Grkinic, Steve Holding, Madeleine Ella, John Shand, Jez Ford, John Sunier, Val Barbour, Whendi Walkley, Rod Easdown.

Advertising Sales: Lewis Preece 0434 439 032 Advertising Liaison: Diane Preece dpreece@nextmedia.com.au Divisional Manager & National Sales Manager: Jim Preece 0400 808 900 Production Manager: Peter Ryman Circulation Director: Carole Jones

Australian Hi-Fi Subscriptions

Phone: 1300 361 146 or +61 2 9901 6111 Locked Bag 3355, St Leonards, NSW, 1590 **Subscribe online: www.mymagazines.com.au**

nextmedia

Level 6, Building A, 207 Pacific Highway, St Leonards, NSW, 2065. (Locked Bag 5555, St Leonards, NSW, 1590)

Telephone (02) 9901 6100 Fax (02) 9901 6166 www.nextmedia.com.au

Chief Executive Officer: David Gardiner Commercial Director: Bruce Duncan

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46 SOU This is wisely

SOUND TRAVELS

This issue, we visit a music lover who, wisely, takes room acoustics very seriously, whilst also loving his big American muscle McIntosh kit.

48 AUDITION

On a recent trip to Melbourne, Edgar Kramer grabbed the chance to audition a system that included Goldmund's Eidos 17 Universal Player, Mimesis II Wireless Hub and ProLogos Wireless speakers.



CONTEN

DEPARTMENTS

- Audio News Auricle Blu-Ray Reviews Dealer Directory Editor's Lead-In Esoterica
- First Look
- Jazz Track

- 10 Hi-Fi Marketplace
- 48 High End
- 71 Obituary
- 72 Personal Audio
- 5 Reprint Service
- 45 Section 52 Information
- 48 SoundBites
- 70 Sound Travels



74

48

65

66

64

7

10

OUR FRONT COVER: This month's front cover shows the insanely good Avid Sequel SP turntable

- that's reviewed in 46 this issue.
 - (See page 36.)

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9/1

Audia Flight Three S New Integrated Amplifier

"I'm not afraid to say that the Audia Flight Three S is one of the best integrated amplifiers of the moment!" – Philippe David, Haute Fidelite, March 2015



SOUNDBITES

EXPOSURE 1010S2-D AMPLIFIER

Now in its fourth incarnation, Exposure's 3010S2-D 110-watt per channel integrated amplifier now offers plug-in MM or MC phono stages or a DAC. Like its predecessor, the 3010S2-D comes with six line-level inputs, but one of these is now a direct AV input to enable integration within a surround sound system, plus a pre-amp output. There is now also the possibility to fit an optional MM or MC phono stage, or a plug-in DAC. The latter is capable of up to 192/24 bit PCM and DSD 64, and comes with two inputs: USB and BNC, with

auto-switching between them. The preamplifier has a new circuit board with all discrete components rather than integrated circuits, while the power amp has a fast bipolar transistor output stage for dynamic and vivid performance. The 3010S2-D also has a new power supply with additional stages of regulation for improved performance. 'As is the case throughout the 3010S2 series, much attention has been paid to the circuit design in order to extract the best possible sound quality,' said Exposure's Brighton-based chief designer Tony Brady. 'Special high-quality capacitors are used in the signal path, and the circuit topology has been mapped with a view to keeping signal and power supply paths short. Cascode circuitry is used for improved power supply immunity.'

For further information, please contact RVM Audio on (08) 9417 9944 or visit the website at www.rvm.com.au

ISOTEK EVO3 VENUS POWER

Mains conditioning systems specialist Isotek has extended its entry-level 'Discovery' range with the Evo3 Venus AV power centre, a five-outlet mains conditioner designed to protect a complete audio or AV system. The Evo3 Venus uses what Isotek calls 'delta filter topology' to filters out common mode and differential mode noise from the incoming 240V mains power and claims an ability to reduce r.f.i. (if present) by 30dB. Each of the five outlets is independently isolated. In addition, Isotek savs it incorporates protection sys-



ō

which distributes Isotek in Australia. 'Top-quality parts are used throughout, including a hand-soldered, silver-plated PCB, and internal wiring with silver-coated oxygen-free copper conductors and a Teflon polytetrafluoroethylene dielectric.' Clarke says the sonic improvements delivered by the Evo3 Venus: 'include greater clarity and definition, a lowering of the noise floor leading to improved dynamic range and enhanced spatial qualities, as well as a refinement and a general opening up of the soundstage.' Available now, the Isotek Evo3 Venus retails for \$699

tems that provide instantaneous protection from electrical spikes and surges of up to 13,500 amps. 'Unlike many entry-level mains filtration products which use off-the-shelf components, the Evo3 Venus is designed from the ground up by Isotek,' said **Paul Clarke**, of Audio Active, For further information, please contact Audio Active on (03) 9699 8900 or visit the website at www.audioactive.net.au

YG ACOUSTICS CARMEL 2

YG Acoustics' Carmel 2 has a thicker baffle, improved resonance damping, new drivers and a new crossover, but as with the original Carmel design, every cabinet panel is made from in-house milled, aircraft-grade aluminium billet. Although the Carmel 2 has 'new' drivers, they're not strictly 'new' as such, since YG Acoustics has fitted the 'ForgeCore' tweeters and 'BilletCore' cones that it's been using for some time, but only one models higher-up in YG Acoustics' range. (The original Carmel used tweeters and midbass drivers sourced from Danish manufacturer ScanSpeak). The new cabinets and drivers obviously necessitated a new crossover network, which uses a topology YG says is 'DualCoherent' because according to Yoav Geva, of YG, 'it simultaneously minimises non-linearity in both the frequency and time/phase domains.' Geva told Australian Hi-Fi Magazine that the new drivers, crossover, and updated industrial design bring greater technological and aesthetic coherence across all of the YG models. 'The new Carmel 2 delivers the lifelike natural sound of YG Acoustics' flagship Sonja and Hailey loudspeakers, at a price that is within reach for many of those who-until now-had only been able to dream of owning a speaker of such ultra-high-end calibre,' said Boris Granovsky, of Absolute Hi End, which distributes YG Acoustics in Australia.

For further information, please contact Absolute HiEnd on (04) 8877 7999 or visit the website at www.absolutehiend.com



MAGICO

MAGICO S-7

Magico has released its new S-7 three-way, floor standing loudspeakers, which incorporate new tweeters, new midrange drivers and new bass drivers derived from the M-Project loudspeaker. Although it's a part of Magico's S-Series, the S-7 towers over the other models in the S-Series range. Its 1.42-metre-high acoustic suspension enclosures have curved aluminium side panels that are machined in-house at Magico from 12mm-thick aluminium extrusions and braced internally to minimise resonances. The S-7 uses three new 254mm-diameter aluminium-coned bass drivers with a claimed linear excursion of 15mm. 'The basket, spider and voice-coil design of the new bass drivers in the S-7 follow similar design principles as the bass drivers used in the M-Project loudspeaker, ' said Boris Granovsky, of Absolute HiEnd, which distributes Magico in Australia. 'They have extremely powerful magnets, ultra-stiff aluminium cones and are capable of producing deep, powerful bass frequencies with such speed and accuracy that they can produce clean and undistorted sound pressure levels of up to 120dB at *50Hz at one metre.*' The 152-mm-diameter midrange driver's cone is made from a compound of Arkema multi-wall carbon nanotube and XG Sciences C-750 nanographene. Magico says the resulting cone is 20 per cent lighter and 300 per cent stiffer than the cone materials it's previously used in its midrange drivers. It has an underhung neodymium motor system with two extra-large magnets that provide an ultra-stable magnetic field for the voice-coil, which is wound from pure titanium. The driver operates from a sub-enclosure within the S-7 that's made from the same proprietary polymer material that was first introduced in the Magico S-3. The S-7 uses a new 25mm-diameter diamond-coated beryllium diaphragm tweeter that Magico says was purpose-built for the S-7. 'This new tweeter has extra-long excursion and uses a neodymium-based motor system that is customised to match the sensitivity and power handling capabilities of the S-7 while maintaining ultra-wide dispersion characteristics and ultra-low distortion measurements,' Granovsky told Australian Hi-Fi Magazine, 'and the crossover uses Magico's exclusive elliptical symmetry crossover topology that includes state-of-the-art components from Mundorf of Germany.'

For further information, please contact Absolute HiEnd on (04) 8877 7999 or visit the website at www.absolutehiend.com



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EXTREMA EVOLUTION SERIES

Class-A Audio has announced the availability of Extrema's extensive range of audio and AV racks. Extrema manufactures racks in four different styles: Classic, Radiance, Profile, and Evolution, with varying models and shelving configurations available in each of the styles. Pricing starts at \$495. *'Extrema's Evolution series is particularly distinctive, due to the harmony of the geometrical relationships of the various parts of the racks, along with the chromatic contrast between the surfaces and the overall finishes,'* said a spokesperson for Class-A Audio. According to Extrema, Evolution Series racks are capable of supporting shelf loads of up to 70kg per shelf, and the shelves can be positioned at distances of 210mm, 210mm and 330mm and in any order you like. The model AF14 measures 640×560×940mm (WDH) with a width between pillars of 510mm.

or further information, please contact Class-A Audio on (03) 9878 7745 or visit the website at www.classaaudio.com.au

HI-FI ARTWORKS

SOUNDBITES

UK speaker designer Phil Ward, who has worked for Mordaunt-Short, Canon Audio and Naim, has released a limited-edition series of prints called Audio Icons, inspired by classic British hi-fi products from the 1970s and 1980s. Audio Icons kicked off with editions illustrating six iconic amplifiers and nine iconic speakers. Planned future editions include turntables, a second collection of speakers, a second collection of amplifiers, and complete hi-fi systems. Editions will be limited to 100 with each print signed and numbered. 'The illustrations that comprise Audio Icons are created by using a variety of digital techniques and based on a combination of personal experience, photographic research and manufacturer's data,' said Ward. 'The illustrations portray each product as accurately as possible while at the same time capturing their unique personality and the extraordinary creativity, engineering skill and enthusiasm that went into each one.' The 332×484mm (13" × 19") prints are made on high-quality 200gsm fine art paper and are supplied rolled and ready for framing. Prints retail at £60 each including postage (in the UK and EU).

More information at www.audio-icons.com

ELAC AIR X WIRELESS

Germany loudspeaker manufacturer Elac has introduced a family of wireless active loudspeakers as part of its Air-X system. The system consists of active loudspeakers each equipped with an Air-X AMP amplifier unit, and the Air-X BASE base station, which can be purchased separately. The BASE acts as the central control unit to which you connect your various digital and analogue sources for lossless 24-bit/48kHz conversion and r.f. transmission via Elac's 2.4GHz 'KleerNet' to the active speakers.

The Air-X AMP is Class A/B design which Elac rates with a power output of 225-watts into 4Ω. Integral DSP functions allow you to make adjustments to bass and treble and invoke a loudness contour if desired. For those who don't want or require wireless connectivity, both balanced and unbalanced analogue inputs are provided. Two bookshelf/standmount models are available, the Air-X203 and Air-X403, and two floor-standers, the Air-X207 and Air-X407. The Air-X system can accommodate multiple loudspeakers, all of which can be controlled by one or more Air-X BASE units. 'You can play the same music throughout the house or play back different signals in every room,' said **Philip Sawyer**, of Synergy Audio Visual, which distributes Elac in Australia. 'A single BASE unit can control up to

three zones, offering the kind of flexibility that is a joy to hear. With the AIR-X system, Elac has a product family whose combination of wireless functionality and superlative playback quality is without precedent.'

For further information, please contact Synergy Audio Visual on (03) 9459 7474 or visit www.synergyaudio.com

FLAT



SENNHEISER

SENNHEISER WINS GOLD

Sennheiser's Urbanite headphone range has won a gold award at the International iF Design Award Competition. The award citation from the international jury of judges released said of the Sennheiser Urbanite Range: 'A 'feast for the ears' that has all eyes upon it: the optimal technical performance of Sennheiser's Urbanite headphones is rounded off with a minimalistic, accentuated design. The high-quality materials including textile elements, the individual colour scheme and the robust urban style combined with perfect craftsmanship as well as technical innovation constitute the special charm of this product.' Sennheiser also received an 'iF Label' for other models in its 2015 range, the new wireless headphone models RS175, RS185 and RS195 and the in-ear CX1.00, CX2.00, CX3.00 and CX5.00. Oliver Berger, Global Design Manager at Sennheiser said: 'We are very proud to have received this accolade as the iF gold award is only presented to the very best submissions of the year. The expert jury's recognition confirms our belief that our Urbanite is more than just a trend product. The models' stainless-steel hinges, unique folding mechanisms and superlight ear pads ensure durability and great comfort and the colour-coordinated, fabriccovered headbands round-off the outstanding style of the series.'

For further information, please contact Sennheiser Australia on 1800 648 628 or visit the website at en-au.sennheiser.com



"Stereo Topics" by Tom Manning May 2015

What makes record playing so pleasurable?



The sound quality is just one of the sensory treats on offer when the black starts to spin. With carefully chosen components, the music is often better than other formats.

Most who've heard the finest phono systems would agree that the best of vinyl just sounds better than bits and bytes. The most rewarding performances don't always need the most expensive equipment.

The vinyl experience is a little like the thrill of spotting wild creatures in their natural space, rather than on a trip to the zoo. The digital equivalent, a little like a sleek nature documentary, often lacks the richness and warmth. Pretty, but a bit thin.

It's the musicality that matters. It can be elusive, but you know it when you're hearing it. You don't need the expensive audio jewellery you hear at the annual Munich High End show; simple phono systems with carefully chosen components can have you up way too late playing records, as many of our customers do. A good vinyl system can touch you in a dimension beyond the audible.

Have you ever heard of a group of mates getting together to play a few CDs one night? Thought not. Vinyl nights are fun, with the social usually subsuming the audible. Records are tangible, tactile, palpable and desirable. They're fun to look at and play, they sound great and there's that nervous excitement every time the needle meets the groove.

I'm not an audiophile in the conventional sense and I don't really speak their language. I rarely make the time now to enjoy my superb vinyl collection but the idea of taking the black for a spin still excites me.

At Speakerbits, we repair, service and maintain turntables. I prefer the specialist brands as they're more satisfying to work on but we also repair older, middle range Japanese turntables with the same dedication. Many hundreds of turntables have passed through our workshop over the decades, but we're always ready to learn about more.

Ortofon, for audibly obvious reasons is the only cartridge brand we ever fit. I will discuss this in a later article but in the meantime, drop me a line if you have a turntable, cartridge or speaker concern. That's what we do at Speakerbits. You are always welcome!

> tm@speakerbits.com www.speakerbits.com.au



SOUNDBITES

LEGEND ACOUSTICS UPGRADES KURRE

Award-winning Australian loudspeaker manufacturer Legend Acoustics has released Version 8 of its monitor bookshelf/standmount loudspeaker, the Kurre. Dr Rod Crawford, Legend's designer chief, told Australian Hi-Fi that the changes included new drivers and crossover plus a change to a sealed cabinet design. The new bass/midrange driver has an aluminium alloy cone that's been strengthened by ribbing that also pushes the cone break-up frequency well beyond the crossover point. According to Crawford, this means the upper midrange, often a weakness of two-way loudspeakers, is totally free of breakup distortion. 'This makes the sound quality crystalclear yet also naturally warm and open,' he said. 'The new low-distortion drivers are combined seamlessly using very high-quality crossovers to produce an especially flat frequen-

cy response-within 2dB over most of its frequency range—and within 1dB over the critical midband—giving the tonal accuracy of a studio monitor.' The crossover network in the Kurre Version 8 uses air-cored inductors, high-quality polypropylene capacitors and high-powered non-inductive resistors, all of which are hand-soldered point-to-point as are the high-quality cables connecting the crossover network to the drivers and to the bi-wire input terminals. 'The overall result is an even-clearer, even-faster and more naturally open sound than previous versions of the Kurres,' said Crawford. Individually built and tested in Australia, the Legend Acoustics Kurre 8 retail for \$2,290 per pair.

For more information, call Legend Acoustics on (03) 6295 0062 or visit www.legendspeakers.com.



SUNFIRE XTEQ SUBWOOFERS

Sunfire's latest XTEQ luxury subwoofer line-up continues the performance and power standards set by its Atmos and TSEQ models, but in some of the smallest subwoofer enclosures in the industry. 'The 8-inch XTEQ8, 10-inch XTEQ10 and 12-inch XTEQ12 are housed in enclosures barely bigger than the size of the woofer diameter,' said **Ralph Grundl**, of Qualifi which distributes Sunfire in Australia. 'The XTEQ12 measures just 330×330×310mm, yet it delivers powerful, clear bass.' Grundl told Australian Hi-Fi Magazine that the new range was the result of Sunfire responding to consumer demands for smaller, more powerful



nome theatre subwoofers, and that the new XTEQ series offers integrators and consumers an unprecedented combination of incredible sound quality and small form factors. 'The drivers all feature the latest improvements of Sunfire's renowned high back-emf design, and to best accommodate the longer throw of the XTEQ woofers, all also feature Sunfire's minue 'Asymmetrical Cardinid Surround' design that enables them to trave over a very long throw without distorting,' he said. 'The subs also leverage the latest in Sunfire's auto-equalisation technology to tailor the subwoofer output to compensate for any room's acoustic anomalies, plus they of course still feature the unique tracking downconverter amps invented by Sunfire founder Bob Carver which are so super-efficient that they're able to deliver crazily-high outputs for an AB-class amp.'

Sunfire's exclusive Tracking Down Converter (TDC) amplifiers are used in all three new subwoofers, which also feature multiple turn-on options (auto sensing and 12-volt trigger), soft-clipping circuitry, 'anti-walk' feet and 'slave' connections to

make it easy to join two or more subwoofers. Available now, the Sunfire XTEQ8 retails for \$2,349; the XTEQ10 for \$2,749 and the XTEQ12 for \$3,199.

For further information, please contact Qualifi on 1800 242 426 or visit the website at www.qualifi.com.au

SOL REPUBLIC & TIGER WOODS

Sol Republic has announced a partnership deal Tiger Woods. According to **Geoff Matthews**, of Convoy International, which distributes Sol Republic in Australia, Tiger Woods and Sol Republic will be working together to create new products based on their shared philosophy that 'if it sounds better, it feels better.' '*Music is a huge part of my life and my training; it inspires me to work harder, stay focused and get better every day*,' said Woods. '*It's exciting to find a brand that cares about music the way that I do, and I'm ready to work with Sol Republic on bringing that passion to life.*'

Other celebrities and sportspeople that have part-

nered with Sol Republic include Steve Aoki, Michael Phelps, Julian Wilson, and Australian electronic music duo, Peking Duk. '*Athletes of all levels use music as a motivator to get in their zone and achieve their best*,' said **Kevin Lee**, co-founder and CEO at Sol Republic. '*Tiger is a legendary athlete with a competitive drive that changed the sport of golf and truly shares our passion for music and its power to help propel people to reach their goals.*'

For further information, please contact Convoy International on 1800 817 787 or visit the website at www.convoy.com.au



SONY I Q ACOUSTICS

SONY ZX SERIES

Sony has added new models to its ZX series headphone line-up, two of which incorporate Bluetooth, so you can send your music wirelessly to the headphones from any NFC-enabled music device. The top-line MDR-ZX770BN (\$279.95) also incorporates active noise-cancelling, so you can almost eliminate background noises when travelling on buses, trains or aeroplanes... and so you can use them when flying, Sony includes an aeroplane headphone adaptor. The headphone earpieces are designed to swivel, making it easy to stow the headphones when travelling, and the inbuilt rechargeable battery is claimed to give a music playback time of 13 hours even when the noise-cancelling circuitry is switched on. 'The earpieces have high-quality 40mm neodymium drivers and beat response control for superior audio quality, so you can now enjoy rich bass and clear crystalline highs everywhere you go,' said Abel Makhraz, Head of Video, Sound & Tablet, Sony Australia & New Zealand. 'These headphones bring you thrilling sound with effortless style, particularly for the traveller, with Sony's powerful DNC software engine working to eliminate cabin noise and other background sounds.' The MDR- ZX330BT (\$169.95) also



has Bluetooth but has smaller, 30mm drivers. The inbuilt rechargeable batteries are claimed to deliver a 30-hour battery life when listening wirelessly. The base model MDR-ZX660AP (\$119.95) has 40mm drivers, a tangle-free flat cable, a comfortable on-ear design and is available in three colour variations—black, orange and blue.

For further information, please contact Sony Australia on 1300 720 071 or visit the website at www.sony.com.au

Q ACOUSTICS 3000 SERIES

Q Acoustics has launched a '3000 Series'. The range consists of five new designs the 3010 and 3020 bookshelf/standmount models, the floor-standing 3050, a 3070S active subwoofer, and a 3090C centrechannel that follows on from the company's successful 2000i Series. Q Acoustics' brand director, **Alex Munro**, says: 'Without doubt, Q Acoustics has raised the bar yet again. The new models display beautiful new styling, perfect finishes and deliver clear sonic advances over Q Acoustics' all conquering, '2000i' models... we can continue to confidently proclaim Q Acoustics loudspeakers to be the 'Best on the Planet'—for the money!' The new 3000 Series benefits from numerous features developed for the 'Concept' models, including ultra-low resonance cabinet designs using dual-layer front and top panels, and 'pivotal' internal bracing, but all models also use a brand-new tweeter with a revolutionary '2-in-1' concentric ring dome design which claims the low distortion and extra wide dispersion of both 'ring radiator' and 'dome' type high frequency drivers. The tweeter is also mounted into a butyl-rubber resonancecancelling housing. The bass/midrange drivers use a cone material that's a mix of paper and aramid fibres. Crossovers are



all fourth-order Linkwitz/ Riley types. The 3000 Series models are available in Matt Graphite, American Walnut, Lacquered Gloss Black, Lacquered Gloss White and 'Leather effect' finishes.

For further information, please contact Westan on (03) 9541 8888 or visit the website at www.westan.com.au

NEW-TECH'15

INCORPORATING THE AUSTRALIAN AUDIO & AV SHOW 2015

Occupying the new Hall 5 at the Sydney Show Ground Exhibition Centre, NEW-TECH is a new show featuring interactive exhibits, high-end audio sound lounges, home cinema demonstrations, amd wider technologies including digital photo imaging, satellite navigation, mobile/in-car entertainment,

eco-friendly & leisure technologies.

The NEW-TECH show is aimed at all the family and for all ages, and is organised by The Chester Group. It also incorporates the Australian Audio & AV Show, which our regular readers will know well. This year's NEW-TECH will bring the best of that show together with wider areas of technology and a more interactive experience.

NextMedia is media partner to the event, and we will be providing more details of exhibitors, events and more in the lead-up to the show.

More show info at: www.chestergroup.org

DELAY FOR 4K?

A new patent-licensing group called HEVC Advance has been set up as "an independent licensing administrator company formed to lead the development, administration and management of a new HEVC/H.265 Patent Pool for licensing HEVC/H.265 essential patents". HEVC has been seen as an essential codec for streaming 4K, and also appears in the proposed spec for 4K Blu-ray players. The widespread surprise at this licensing group's sudden appearance and the fact that its 'pool' won't launch until Q3-2015 may serve to slow plans for 4K streaming and replay "before Christmas". Our money is now on 4K Blu-ray players not hitting the market until mid-2016.

DOLBY ATMOS ON YOUR HEADPHONES?

"Put on any headphones or earbuds, and experience Dolby Atmos sound on your mobile device... hear how sounds flow around you from every direction, just as in real life, with real impact..." So say the words accompanying a video at the URL below, promoting Dolby Atmos for your mobile. Really? We're already converts to the overheard speaker implementation of Dolby Atmos (see p81), and certainly one of its great merits is how an Atmos soundtrack can be scaled to any size of system available, right down to mono. But for headphones? The video on the Dolby site is loaded with action above, which is a doddle on headphones where things tend to image around the headband anyway. But flowing from every direction, just as in real life? It's sad to see such nonsense from the innovative folks at Dolby Inc. Try it for yourself at: http://www.dolby.com/us/en/

Try it for yourself at: http://www.dolby.com/us/en/ technologies/dolby-atmos/mobile.html

DIGITAL RADIO FIGURES UP!

The latest digital radio listening figures show an increase in weekly listeners from 3 million in the Nov 2014 GfK figures released by Commercial Radio Australia, to 3.2 million in Feb 2015.

SOUNDBITES

AURALIC | N.A. DISTRIBUTORS | GOLDEN EAR

AURALIC GEMINI

Auralic has released two new DACs that incorporate headphone amplifiers, SD card readers, Android phone players and also function as stands on which you can store your headphones when you're not using them. Auralic says its new Gemini 1000 (\$1,399) and Gemini 2000 (\$2,499) DACs combine technology derived from its Vega Digital Audio Processor and Taurus MkII balanced headphone amplifier. The Geminis support all current formats including WAV, AIF and AIFF and all sample rates/ word lengths up to 384/24 (192/24 over Toslink) with full DSD support. 'With its multi-use capabilities, the Auralic Gemini contains functions that are normally handled by multiple devices and systems," said George Poutakidis, of BusiSoft, which distributes Auralic in Australia. 'Containing some impressive features, the Gemini serves as a headphone stand, headphone amplifier, multiple-input DAC, SD card reader and Android phone player.'

The SDXC card reader built into each Gemini allows it to host your personal digital music library (up to 2 terabytes). After connecting the Gemini to your computer via USB, two device icons appear on your computer's screen: one being the audio interface for the amplifier and decoding, the other for the SDXC card. Each Gemini comes standard with a 4GB SD card loaded with computer drivers, a User Guide, a bundle of high-resolution audio tracks, and a music player. In addition to the SDXC card reader, other input options are USB, Phone (links to Android tablets and phones via a standard data cable) and Toslink. The software supports Windows, OSX and Linux operating systems. Both Auralic Gemini models are available in five colours (black, blue, red, yellow and white). In the case of the 2000, you additionally have a choice of base finish (chrome or gold) while the 1000 comes standard with a titanium base.

For further information, please contact BusiSoft on 1300 888 602 or visit the website at www.busisoft.com.au



N.A.DISTRIBUTORS TO DISTRIBUTE FOCAL

French manufacturer Focal has appointed N. A. Distributors as its new Australian distributor for home audio products. N.A. Distributors, which has branches in Australia and New Zealand, is owned and operated by **Chris Murphy** and **Debbie Stanton** (pictured below). The two have been the sole Australian/NZ distributor for Naim for many years, so following the merger of Naim and Focal in 2011, industry

analysts predicted that the two companies would consolidate their worldwide distribution arrangements. 'The merger in 2011 of Naim and Focal, two major players in the global audio market, created an industry powerhouse,' said **Gerard Chretien**, Managing Director of Focal. 'This has driven the strategic pairing of the two brands under one distribution umbrella in larger markets worldwide, a strategy that makes sound business sense.' Murphy told Australian Hi-Fi Magazine that Focal range of Hi-Fi and Home Cinema



Loudspeakers, its Spirit Headphones and its Multi-Media and Wireless products were a perfect complement to Naim's range of amplification, streaming and music systems. 'We are delighted that our strong business performance as Naim Audio's Australian and New Zealand Distributor fits with Focal's long-term plan for this market,' he said. 'All of us are excited about the possibilities for expanding Focal's presence in Australia and the

opportunity to enhance the Naim brand with the addition of Focal products'.

For further information, please contact N.A. Distributors (Australia) Pty Ltd on (02) 8005 0670 or visit the website at www.nadist.com.au

GOLDEN EAR TRITON FIVE TOWER

The latest addition to GoldenEar's Triton Series is the Triton Five Tower, a 112cm-tall floor-standing design that is bristling with drivers, sporting four 203mm diameter passive bass radiators, two 152mm diameter bass/midrange drivers and a folded ribbon tweeter. Golden Ear specifies the frequency range as extending from 26Hz to 35kHz. '*The new Triton Five is an attractively sized, passive speaker that includes a number of high-end refinements and a unique cabinet shape*,' said **Nigel Ng**, of Kedcorp, which distributes Golden Ear in Australia. '*It's a step up from the Triton Seven Tower and absolutely perfect for use in two-channel systems of the highest quality, as well as in complete multi-channel surround music and home theatre systems.*' Available next month, the Golden Ear Triton Five will retail at \$2,999 per pair.

For further information, please contact Kedcorp on (02) 9561 0799 or visit the website at www.kedcorp.com.au

ALPHA DESIGN LABS

ALPHA DESIGN LABS H128



ADL (Alpha Design Labs) a sister brand of Tokyo-based Furutech, has released its second pair of headphones, which use completely new drivers designed and developed from scratch in collaboration with engineers from Furutech. The H128 is a dynamic closed-back circumaural headphone. Its diaphragms offer both high noise attenuation and low distortion, and feature high quality PEEK film and lightweight coils made with copper-coated special aluminium alloy wire. The diaphragms are driven by 40mm high-resolution extra-large high-flux neodymium magnets fitted with alignment rings designed to ensure phase coherence at ultra-high frequencies. 'With the H128s, ADL's engineers wanted to take the performance of the existing H118 model one step further,' said David Eleftheriadis of Reference Audio Visual, which distributes both ADL and Furutech in Australia, 'and they've done has been to retain the smooth, well-balanced sound of the H118 that has captivated so many headphone enthusiasts, but improved the dynamics and re-created the same 'punch' that you hear during live performances.' ADL's new H128 has rhodium-plated mini XLR sockets and 100 per cent OCC internal wiring. All of the drivers' metal parts are 'Alpha-Process' treated, using a low-temperature two-stage cryogenic and anti-magnetic process that ADL claims 'significantly improves every facet of audio performance.' The H128 headphones also have 'Alpha Triform Contour Earcups' which ADL says give a superior seal over the ears that has the effect of improving bass response over other designs as well as reducing internal standing waves and reflections for reduced distortion. The ADL H128s are available in three colour combinations: silverblack, silver-brown and dark blue and retail for \$600 (RRP).

For further information, please contact Reference Audio Visual on 1800 133 135 or visit the website at www.referenceav.com.au

40 YEARS OF ACOUSTIC DESIGN

40 years of know-how have been packed into the exciting Music for You (M4U) series of high performance headphones. Fold 'em up into the protective travel case and you'll never be far from true hi-fi listening. There's even a thoughtful touch of dual input connections on either side of the headphones meaning no more crossed wires.

Have a listen to hear why the M4U2s have taken home all these accolades.



Distributed in Australia By QualiFi Pty Ltd (03) 8542 111

info@qualifi.com.au www.qualifi.com.au





SOUNDBITES

AUDIO RESEARCH UPGRADES REFERENCE SERIES

Audio Research has upgraded its Reference Series amplifiers to use the new KT-150 output valve, so the Reference 250SE (250-watts per channel), Reference 150SE (150-watts per channel) and Reference 75SE (75-watts per channel) all now use KT-150s. 'But not satisfied with merely changing output tubes, Audio Research decided to also include substantial performance upgrades in the Reference amplifiers to coincide with the changeover to the KT150,' said Philip Sawyer, of Synergy Audio Visual which distributes Audio Research in Australia. 'The resulting active and passive parts changes in the SE amplifiers have resulted in dramatic sonic improvements. Simply put, the new SE versions are better in every way: purity and lack of grain, resolution, micro- and macro-dynamics, separation and instrumental focus, phase and time coherence, and greatly improved bass weight, authority and control.' The KT-150 valve offers higher plate dissipation, higher current capability, more power and a longer lifespan than the power output tubes in common use (KT-66, KT-88, KT-120 etc). **Warren Gehl**, of Audio Research, who evaluated the valve prior to it being used in the Reference Series, told Australian Hi-Fi Magazine: 'We have been very impressed with its performance and longevity. Versus the KT 120 tube, which it most closely resembles sonically, the KT 150 imparts a greater sense of foundation, solidity and authority from the midrange on down much like having a more powerful amplifier on tap. There is



a sense of ease and headroom handling the music that brings out very low level dynamic nuances as well as newfound intensity on high level climaxes which build more dramatically. The sound is full and rich, yet transient response is superbly fast and extremely pure, with the most grain-free and lifelike resolution and transparency. The octave to octave tonal balance is spot on, with improved focus, image stability and sound staging dimensionality compared directly against the same amp with KT 120s. It's holographic and supremely musical in ways reminiscent of the harmonic aspects of the best triode tubes.' Old Reference 75, 150, and 250 amplifiers can be fully upgraded to include all SE enhancements using upgrade kits, which will cost \$5,000 for the 75, \$9,000 for the 150 and \$8,000 for the 250. Prices for the new models are \$15,995 (REF75SE), \$22,995 (REF150SE) and \$25, 995 (REF250SE).

For further information, please contact Synergy Audio Visual on (03) 9459 7474 or visit the website at www.synergyaudio.com

ARCAM SOLO BAR & SUB



Arcam has released a fullfeatured soundbar that can be used as a Bluetooth streamer and also wirelessly connected to a matching subwoofer. The aluminium chassis of the Arcam

Solo Bar has six high-quality drive units and a total of 100-watts of onboard power. There are two 100mm diameter bass/midrange drivers and one tweeter per channel, with the low-frequency drivers powered by a 40-watt per channel amplifier and the tweeters by a 20-watt per channel amplifier. The tweeters are angled by 5 degrees to create a greater dispersion of high frequencies into the room. System connections include four CEC-enabled 4K pass-through HDMI terminals, as well as digital coaxial and optical inputs and analogue 3.5mm line inputs. Apt-X Bluetooth is also fitted, so you can stream music to the bar from your phone, tablet or computer, plus you can stream from the Solo to any Bluetooth-equipped headphones. The Solo bar is supplied with a remote control and a microphone for auto-setup and equalisation, but can also be controlled from any iOS or Android device, using Arcam's free Solo control app. '*Most soundbars offer poor audio performance for TV and are dreadful on music, so there was a clear gap in the soundbar arena for an audiophile approach'* said **Charlie Brennan**, of Arcam. '*The new Arcam Solo bar transforms TV sound, is an amazingly good stereo system and also quite probably the best Bluetooth streaming speaker on the market.*' For owners who want more bass than is available from the Solo Soundbar on its own, Arcam has an optional subwoofer available. '*The optional complementary Solo subwoofer is a sophisticated device that adds a substantial foundation to the sound and enhances the low-frequency experience of both music and movies,*' said **John Davies**, of Sennheiser Brands, which distributes Arcam in Australia. '*It has a 300watt amplifier driving a downward-firing 254mm diameter woofer and can be connected wirelessly or wired to the Solo bar.*' Available now, the Arcam Solo Bar retails for \$1,799, and the Solo Sub for \$1,099.

For further information, please contact Sennheiser Australia on 1800 648 628 or visit the website at en-au.sennheiser.com

BOSE QUIETCOMFORT 25

Bose's QuietComfort QC25 noise-cancelling headphones now come in two versions: one for iPod, iPad and iPhone models, and a newly available version for most Samsung Galaxy smartphones/tablets and Android devices. Both models have an in-line microphone and remote control to make it easier to take calls and control your music. According to Bose, its QuietComfort 25 headphones cancel more noise than any other Bose consumer headphone in history-especially at low frequencies-and have less circuit 'hiss' than conventional active noise-cancelling headphones. Their Active EQ circuit also delivers a smoother frequency response than any other Bose headphones, along with deep, detailed bass thanks to Bose's TriPort technology. 'These improvements can be heard and felt: every recording is reproduced more naturally, regardless of genre,' said Sean Garrett, vice president of the Bose Noise Reduction Technology Group. 'There is no distortion or exaggeration of instruments or vocals. Instead, the QC25 headphones stay true to Bose's 50-year pursuit of re-creating-rather than reinventing-a live performance.' Unlike some early Bose models, the QuietComfort 25s

can be used as ordinary headphones if the battery goes flat. Bose claims the single AAA battery is good for up to 35 hours of use. The headband design of the QuietComfort 25 is proprietary to Bose, and its earpads use an engineered fabric found in high-end automotive applications. The ear cushions are made of protein leather, and the earcups feature a soft-touch TPE bumper and cast zinc pivot. The headphones fold for portability and come with a carrying case that Bose claims is smaller than any in the industry. Available now direct from Bose and Bose retail stores for \$399 they will become available from Bose authorised resellers in June, 2015.

For further information, please contact Bose Australia on 1800 023 367 or visit the website at www.bose.com.au



HARBETH AT CLASS-A AUDIO

Harbeth's range of loudspeakers is now available in Australia from Melbourne-based distributor Audio Magic. 'Our goal,' said Aleksandar Maksimovic, of Audio Magic, 'is to offer audiophiles the best price-quality ratio from brands with several decades of tradition and reputation, so we're thrilled to be appointed by Harbeth to look after the growing band of Harbeth customers in Australia.' Founded in 1977 by Dudley Harwood, a senior engineer in the BBC's Research Department, Harbeth's success was partly due to Harwood discovering and patenting the use of polypropylene as a cone material, then using it on the company's first design, the Harbeth HL Monitor. Later, Harwood developed the 'Radial' cone, which is now a feature on all Harbeth loudspeakers, from the tiny P3ESR right up to the Monitor 40.1. Audio Magic recently appointed Melbourne's Class-A Audio as its first Australian retailer for Harbeth. 'There has been no Harbeth retailer for a long time in Australia, so this is good news for audio lovers,' said Kevin You, of Class-A Audio.

For more information, contact Class-A Audio on (03) 9878 7745 or visit www.classaaudio.com.au

Streaming and SACD/CD playback makes this the only source you'll ever need.

HARBETH



Arcam's CDS27 - SACD/CD/Network Streaming Player offers outstanding performance from all forms of compatible audio media. Music from SACDs, CDs and your network are delivered with outstanding quality to the very highest standards currently available. Using Arcam's unique and hard won engineering expertise, the CDS27 delivers a truly exceptional performance, regardless of the media used.



Opera Mezza 2012

LOUDSPEAKERS

I love that this Italian manufacturer called its company 'Opera' to start with, but even more loved the fact that all its speakers take their names either from famous opera singers or from terms related to singing. Now you know this, can you guess what Opera's first-ever model was called? You'll find out if you were right later on in this review, but in case you're struggling, my only hint will be that the two models that followed the first were named after the famous American/Greek soprano Maria Callas, they being the 'Callas' and the 'Divina' (this last because in her lifetime, Callas was hailed as '*La Divina*'). Sadly, Opera has yet to get around to naming a model after an Australian opera diva, but I guess no-one would want to buy a loudspeaker called 'Nellie' or 'Joan'.

THE EQUIPMENT

The Mezza 2012 is the smallest speaker in Opera's Classica series. And when I say 'small',

I mean it: it stands just 325mm high. It's also rather narrow, at 200mm. It is, however, rather deep, at 320mm, so it ends up with an internal volume of around eight litres. As you can see from the photograph above, it's a two-way design, as you'd predict, but what you can't see is the rear-firing port that reveals it as a bass reflex design.

OPERA"

The 127mm bass/midrange driver is made for Opera by SEAS and although it looks to have a cone made from polypropylene, it's

Opera has solved the 'to fit a dustcap or not to fit a dustcap' question by fitting a porous dustcap

actually made from paper, but has a coating that Opera says effectively dampens breakup. The centre dustcap is interesting, because Opera has solved the 'to fit a dustcap or not to fit a dustcap' question by fitting a porous dustcap. This means that air can't get trapped under the dustcap-so you get quicker cone movements-but also means particulate matter can't get into the gap between the voice coil and the magnet and cause damage, as sometimes happens with cones that don't have dustcaps. So that's a win-win for Opera then! According to Opera, the linear cone travel on this little driver is a full ±5mm, so the designers have been able to extract more bass than you'd otherwise expect from it.

The tweeter is a 25mm soft-dome made for Opera by Scanspeak and is the same one that's used in all models in the Classica line, right up to the Grand Mezza. According to the specifications, the SEAS operates up to 1.85kHz after which the Scanspeak takes over, with the crossover imposing 12dB per octave roll-offs either side. Sensitivity is rated at 88dBSPL at one metre for a one watt input, while both the nominal impedance and the minimum impedance are specced at 4Ω .

The speakers are available in cherry, mahogany, piano black lacquer and white high-gloss finishes, but really, it's only the sides that are wood, because the remainder of the cabinet is wrapped in light black leather.

If you're wondering about the curious name of the speaker, it was chosen to distinguish the Mezza 2012 from an earlier design which, although it was a similar size to the Mezza 2102, and was called the 'Mezza', was actually a different design, using different drivers, a different crossover frequency and a different crossover topology. Personally, I think it was a mistake to call this new (well, not that new... it was introduced in 2012) speaker by a similar-sounding name. Instead, Opera should probably have named it something entirely different... and if it's not too late, what's wrong with Melba?

IN USE AND LISTENING SESSIONS

Obviously you're going to have to mount these speakers on stands or place them on a bookshelf or, maybe, wall-mount them. But whatever you decide, Opera recommends you leave a minimum 30 centimetres of space between the rear of the cabinets and a rear wall. I opted for stand mounting and although my stands worked well sonically, they are really thick, solid and heavy stands, and the Mezza 2012s are so small that they looked a little silly sitting on top of them. So if you're planning on using stands, make sure they work visually as well as acoustically, and that the stands put the tweeters the same height above the floor as your ears are when you're sitting in your usual seating position. (Opera makes a pair of stands specifically for the Mezza 2012s.)

I played around with speaker positioning a bit and I wouldn't take Opera's 30cm as 'bible', but I certainly wouldn't move them any further away from the wall, because there's a distinct loss of bass as a result. Moving them closer than 30cm can increase the bass, depending on the room and any such increase would be welcome, because deep bass is not a strong point of this design, as you'd expect from the size of the cabinet and the bass/midrange driver. Even optimally positioned in my room I still would have liked a touch more bass, so if I owned these speakers I'd definitely be combining them with a subwoofer and creating a 2.1-channel system. That said, if you live in an apartment with a small listening room, you may well prefer to have slightly attenuated bass to ensure your neighbours aren't constantly complaining about you playing music at all hours.

The midrange from the Mezza 2012 was gloriously sweet, with just a little bit of 'punch', or forwardness, which lifted vocals, in particular, to a new level. A good call from Opera, because I felt that a more linear response would have sounded too mannered and polite. The slight forwardness also helps with detailing, so although the sound was not analytical, there was always the feeling that you were hearing all there was to hear, and that various distinct strands of music could be enjoyed on their own, or as a cohesive whole, which I particularly enjoyed when listening to *a cappella* performances. Such performances, of course, have the additional benefit that there's no requirement for deep bass, so the Opera Mezza 2012's excelled with such music.

Also glorious was the stereo imaging, which was spot-on.

OPERA MEZZA 2012 LOUDSPEAKERS

Brand: Opera Model: Mezza 2012 Category: Loudspeakers RRP: \$1,999 Warranty: Five Years Distributor: Radiance Audio Visual Address: Unit 33, 5 Gladstone Street Castle Hill NSW 2154 Total (02) 9659 1117 Info@radianceav.com.au

- Superb mids and highs
 Amazing imaging
 Superior finishes
 - Deep bass
 - Grille design

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Opera Mezza 2012 loudspeakers should continue on and read the LABO-RATORY REPORT published on page 82. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed

using graphs and/or photographs should be construed as applying only to the specific sample tested.

Lab Report on page 82

Superb midrange and highfrequency performance, and their stereo imaging is amongst the best I've heard

Put yourself in the 'sweet spot' with the Opera Mezza 2012s and it will be as if you're at the original performance, completely immersed in the sound field that will appear to come from all around you, but at the same time you'll also find that the vocalists and instrumentalists are still firmly fixed on the stage in front of you, so you can hear exactly the origin of every sound source. The frontal stage image has both height and depth, as well, so the sound-field is far, far 'bigger' than you'd expect given the small physical size of the speakers. It seemed to me that these speakers would make wonderful near-field monitors, so I also experimented with putting the speakers at the rear of a desk and using them as such, to find that as I'd imagined, they DO make wonderful nearfield monitors, so if you want superb performance when you're working on a computer, or watching catch-up TV or suchlike, the Opera Mezza 2012s would be a great choice.

High-frequency performance was outstanding. The treble was extended and exhibited

a tonal purity that metallic tweeters seem to lack, so that cymbals, for example, shimmered beautifully, and the upper reaches of the sound of violins never ever hardened or became edgy, even during orchestral crescendos. And unlike some tweeters using neodymium magnets, the high-frequency balance remained exact, even after extended playing at relatively high volume levels,



rather than rolling off after a while, as lesser– quality tweeters are often wont to do.

So far as amplifier-matching is concerned, I feel you'd be best-served using an amplifier with a rating of around 50–60 watts per channel, because I found having additional power on tap enabled the Mezza 2012s to deliver their finest performance. However they don't like being starved of current either,



so whatever amplifier you choose should be capable of delivering at least 50-watts into both 4Ω and 2Ω loads. And if you use a valve amp, make certain that you connect the Mezza 2012s to its 4Ω transformer taps.

CONCLUSION

For use in a smaller room or as a near-field monitor, Opera's Mezza 2012s would be a wonderful choice, because they're efficient for their size, have superb midrange and highfrequency performance, and their stereo imaging is amongst the best I've heard. You are, I think, paying a premium for the 'Made in Italy' cachet, as well as for the luxuriously finished leather/real-wood cabinetry, but for me, the appearance and the sound quality make this a great investment. Oh, and as for the name of Opera's very first loudspeaker, it was the 'Caruso', of course! - - greg borrowman

CONTINUED ON PAGE 82



ON TEST

Parasound P5 and A23

PARASOUND

PARASOUND

PREAMPLIFIER AND POWER AMPLIFIER

lever! That's what I cried out once I'd finally got my head around the Swiss Army knife of a component that Parasound has created with its P5 pre-amplifier. Then I thought to myself: '*Really* clever!' Because although the Parasound P5 is a fully-featured preamplifier, and a digital-to-analogue converter, and a headphone amplifier... and a lot more besides... it's also an electronic crossover, and so far as I know, no-one has previously thought to integrate an electronic crossover into a preamplifier. And I, personally, think that doing so is an absolutely wonderful idea.

THE EQUIPMENT

Why do I think incorporating an electronic crossover into a pre-amp is so wonderful? Because it means you can use it to prevent Doppler distortion in your main loudspeakers and effectively increase the power-handling ability of those speakers. And insofar as your power amplifier is concerned, it can reduce distortion in that amplifier, plus effectively give it a far higher dynamic power rating. You gain all these advantages by using the electronic crossover to send all the low frequencies to a subwoofer (or in the case of the Parasound P5, up to two subwoofers) for amplification and reproduction, and only the



Power Output: Single channel driven into 8-ohm, 4-ohm and 2-ohm non-inductive loads at 20Hz, 1kHz and 20kHz. [Parasound A23 Power Amplifier] higher frequencies to your power amplifier and (therefore) main speakers. And yes, I know there are some subwoofers on sale that allow you to do this, but most don't, and of the few subwoofers that do, not many do it well. Far better to perform the crossover function in the preamplifier section, as is done here.

So on the back of the P5 you'll find two crossover outputs: a low-pass output with a rotary control and settings at 20Hz, 40Hz, 60Hz, 80Hz, 100Hz, 120Hz and 140Hz, and a high-pass output also with settings from 20Hz to 140Hz and calibrations at 20Hz intervals. Associated with both crossovers are slider switches that allow the crossovers to be bypassed, should you so desire.

Despite my enthusiasm for the idea of incorporating an electronic crossover in the P5, it appears this wasn't really Parasound's purpose in so doing. According to Parasound's long-serving CEO, Richard Schram, the actual reason was: 'to offer a true audiophile two-chan-



nel pre-amp that could be seamlessly integrated into a multi-channel system' because 'few people have the space for completely separate twochannel and surround sound systems.' There's no doubt that Schram is right and that, as he says, 'the P5's Bypass and 2.1 modes allow the user to preserve the true audiophile integrity of their stereo set-up yet also offers the ability to engage their surround sound system at the touch of a button' but I would prefer to think of the P5 as an exclusively stereo high-end pre-amplifier.

A23 Power Amplifier.]

As a dedicated pre-amplifier, the P5 certainly offers tons of features and operational flexibility. In addition to the digital inputs (about which more later), the P5 has five line-level analogue inputs, four of which are unbalanced (RCA terminals) and one of which can either be balanced (XLR terminals) or unbalanced (RCA)—but not both at the same time... you can only connect one or the other! It also has a phono input with switching for both moving-coil (MC) and movingmagnet (MM) cartridges, with selectable load $(100\Omega \text{ or } 47k\Omega)$ for the moving-coil option. There's also a home theatre bypass option, as I mentioned earlier, which outputs the leftchannel, right-channel and subwoofer signals without any processing or volume adjustment. There's also a pair of fixed-level Record Outputs, so you can send analogue audio to a recorder of some kind if you wish.

On the 'outputs' front, you have the already-mentioned outputs from the two crossovers (which if bypassed operate as conventional full-range unbalanced analogue outputs, via RCA terminals) but you also have a pair of full-range balanced outputs (XLR) and a balanced subwoofer output (XLR). The output from these can also be optionally routed through the crossover or switched to operate as full-range outputs. And if all this wasn't enough, there's also an analogue input on the front panel (a 3.5mm stereo phone socket) for a portable device, plus a headphone output (also via 3.5mm phone socket...not my favourite physical connector for a headphone socket on a full-sized hi-fi component).

So far as the DAC inside the P5 is concerned, Parasound is using a Burr-Brown 24-bit, 192kHz-capable PCM1798 DAC that's fed via optical (Toslink), coaxial (RCA), or USB (use the USB option though, and you're limited to 24-bit/96kHz performance). This is the same DAC PS Audio uses in its standalone NuWave DAC, which costs more than Parasound is asking for its P5.

As you can see from the front panel, the P5 has good old 'old-fashioned' (but very useful!) bass and treble controls, but if you're not a fan of tone controls, you can press a button and take them out of circuit. A balance control (also useful, and inexplicably AWOL from a great many pre-amps and integrated amplifiers) is also a fixture on the P5, so it also gets a big tick from me. There's a separate volume control for the subwoofer outputs, plus a global muting button. This muting button is not overly 'smart' in that it will turn off automatically (as it should) when the up or down buttons on the remote are pressed, but not if the front panel's volume control



Power Output: Single and both channels driven into 8-ohm, 4-ohm and 2-ohm non-inductive loads at 20Hz, 1kHz and 20kHz. [P5/A23]

is turned, which means it could be possible for your speakers to be blasted with sound at high volume levels if the front panel volume control is turned up while the amplifier is muted, and the muting then removed. Also, the P5 allows you to switch inputs while its output is muted, so if you switch to a source that has a substantially higher output than the source you switched from, you could again be 'blasted' by sound at high volume when you un-mute.

Interesting, although the muting button has associated colours that make its status clear (blue-coloured



The shape of the power on/off and mute buttons is strange, presumably so they can be rear-illuminated more effectively. They're lozenge-shaped and protrude from the panel on a stalk that makes them look almost mushroom-like... if you can imagine a lozenge-shaped mushroom. They do work beautifully though... a very 'positive' feel with great tactile feedback.

The remote control isn't particularly flash, and you don't get any additional features when using the remote, so it's really only for the convenience of operating the unit from

PARASOUND P5 & A23 PRE & POWER AMPLIFIERS

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LAB REPORT

Readers interested in a full technical appraisal of the performance of the Parasound P5 Pre-amplifier and A23 Power Amplifier should continue on and read the LABORATORY REPORT published on page 30. Readers should note that the results mentioned in the report, tabulated in performance charts and/

C S S

or displayed using graphs and/ or photographs should be construed as applying only to the specific sample tested.

Lab Report on page 30

the comfort of your listening chair. It's supplied with a set of 'Titen' (sic) AA batteries. Don't even think of installing these in the remote... chuck 'em and install a decent set of Eveready alkalines that are guaranteed not to leak!

The exterior of the P5 is thick, solid metal, and the assembly and build quality is excellent, but it's not exactly pretty. It looks like it's been built to slide into a professional equipment rack, or be tucked away in a cupboard rather than as a display piece. (And, since you can indeed order the P5 with rack-mount handles, I'm probably not too far wide of the mark with this description.)

PARASOUND A23 POWER AMPLIFIER

The circuitry for the A25 was designed by John Curl, whose name is legend in audiophile circles. Although Curl was already well-known in professional audio circles for his work with Ampex Corporation, and with musicians for his work with The Greatful Dead, he didn't really come to the attention of the audiophile fraternity until he worked on the JC1 and JC2 amplifiers for Mark Levinson (and if you didn't know that, you now know what the initials of those Mark Levinson products stood for). Curl eventually left Levinson to found his own high-end amplifier company (Vendetta Research) but has since 1989 been consulting for Parasound in San Francisco, primarily developing the Halo series amplifiers for the company, but also working on other Parasound projects. At Parasound, Curl is insistent that his designs use the finest parts possible, avoids the use of capacitors and inductors in the circuit path, and continues to use balanced circuits, despite the additional costs. Schram once said of Curl: 'He wouldn't last a week in a mass-market factory ... the accountants would probably reject every part he picked because it cost too much. At the same time, he knows how to make a very,

very good product at what we consider to be a reasonable price.' Despite being lauded for his amplifier designs Curl, at age 72, is still chasing perfection. 'We have never yet been able to make a completely perfect amplifier at any price... the challenge is to make very good amplifiers in a way that is cost-effective, he says.

As you can see for yourself, the front panel of the Parasound A23 is almost devoid of controls, pretty much as you'd expect for a power amplifier, but if you look at the rear of the A23, you can see it has far more controls and features than you'd expect. It has both balanced (via XLR) and unbalanced (via RCA) inputs, plus a loopthrough so you can route an input signal to an additional amplifier if you like. There are also two volume controls—one for each channel—so not only can you adjust volume, you can also adjust channel balance. These controls have a smooth action, rather than a 'click-stop' action, so if you need precise level adjustments, you'll likely have to use test equipment to get the levels perfect, unless you set both controls to maximum (labelled as 'Reference/THX').

Three toggle switches are provided for Ground Lift (which can be used to prevent ground loops that might otherwise result in audible mains hum), balanced/unbalanced input selection and selecting between ordinary stereo operation and bridged mono operation. As the name suggests, this means you can use the A23 as a standard two-channel stereo amplifier, in which mode it's rated to deliver 125-watts into 8 Ω loads, or you can switch it for single-channel monobloc operation, in which case the A23 is rated to deliver 400-watts into the single 8 Ω load.

At the left of the rear panel is a suite of options for turning the A23 on (and off). You can elect to do this manually, or you can have the Parasound auto-sense the presence of an audio signal and switch on automatically (in which case it will switch off automatically once it no longer detects an audio signal). You can also have it triggered remotely via the usual 12V d.c. system used by home theatre (and home install) components. To ensure there isn't any 'nuisance' switching, the A23 waits for around five minutes after it no longer detects a signal before switching itself off. Switch-on is instantaneous.

The speaker terminals are certainly serviceable, and they're gold-plated multiway types, so they're not exactly 'budget' terminals, but if there's a MkII version of the A23, I would really like it if Parasound could allow Curl a bit of extra budget to improve the terminal quality. However, since the A23 has been in continuous production since the turn of the century, I can't see there being a MkII anytime soon!

Internally, the most visually impressive component is the massive custom-made 1kVA encapsulated toroidal power transformer with its independent secondary windings for each channel. Storage and smoothing is by way of four 10,000µF/80V electrolytic capacitors, for a total of 40,000µF. (Parasound specifies a total of 48,000µF, so presumably there's been some slight modifications to the circuit over the years the A23 has been in Parasound's line-up... the PCB on our review sample, for example was last revised in 2002.) The amplifier topology is that of a complementary MOSFET driver stage and JFET input stage, with the final output being via twelve beta-matched 15-amp, 60MHz bipolar output transistor pairs-Sanken C3519/ A1386 types, to be precise. There are two big internal aluminium heatsinks running down either side of the PCB, so there's no need for any noisy fan-cooling. The amplifier is well-protected from misadventure thanks to the use of d.c. servos, relays and fuses, along with thermal protection. Rather unusually, all the individual components on the PCB are 'old-school' through-hole types... there's not a surface-mount component in sight!

IN USE AND LISTENING SESSIONS

It wasn't until I had mounted the Parasound P5/A23 combo on my equipment shelving that I really took any notice of the red power lights that indicate each component's power status. Each centrally-located light is a rectangular section of black plastic that's embossed with a metallic 'P'. These glow a fairly bright red when the Parasounds are operational,



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ON TEST

and a soft muted red when they're in Standby. I found that on close inspection the design wasn't really to my taste, being a little too 'American' in style... but that's very much a personal call.

Operationally, everything worked perfectly, though the rotary controls used for bass, treble and balance felt a little stiff under my fingertips. The input source encoder, on the other hand, is a delight under the fingertips, rotating smoothly and with the sound automatically and momentarily muted during switching. The relays that do this are a tad noisy, but this is of no import. Blue LEDs light to show the selected input, unless you've

selected 'Bypass' which is instead indicated by an orange LED.

The motorised volume control works reliably and well no matter whether you use the remote or turn it manually. If you turn it manually there's no backlash, so you can set volume levels easily and repeatedly, and if you use the remote, you can see where the volume knob is set to thanks to a white line scribed on it.

One of the first tasks I set myself with the Parasounds was to use them to seriously audition a young(ish) pianist of whom I previously was not aware, and had been recommended to me by a friend who said that I would 'enjoy her unique Bach interpretations'. Well I don't know about 'enjoy' bit but I was certainly in no doubt about the 'unique' because I don't think I've ever heard any pianist use the same phrasing or dynamics. But that was what most people thought when they first heard a young Glenn Gould's take on the Goldberg Variations. And it was Gould's performance that triggered a worldwide re-evaluation of Bach's work. His recording, in 1955, was amongst the very few recorded versions available at the time, and the first of the few to gain any prominence. But as a direct result of Gould's performance, I can tell you that as of 2015 there are now 213 versions available, across multifarious instruments... including-I'm told but don't quite believe-a version for jaw harp.

So think what you will of Simone Dinnerstein's interpretations, if her performances inspire others to investigate Bach's work, that's a great outcome. However, lest you think I'm being too hard on her, I've been leading you on for literary effect, because I absolutely love her playing, not only for the inner voices she



found that I'd not previously heard, but also because her interpretations made me go back and re-evaluate other, different versions... also a good thing. When listening, I had ample opportunity to appreciate what the Parasound P5/A23 duo was bringing to the party. The first and most obvious contribution was the dynamism that's on tap, with the A23 able to effortlessly deliver Dinnerstein's most thunderous crescendos... and they are thunderous, because she has powerful fingers and an even-more powerful technique, allowing her to extract major SPLs from any piano she plays-in this case a restored 1903 Steinway Model D. Her 'not quite staccato' attack on the keys in Variation 1 is miraculously good, as is her tonal shading. The ritardando at the conclusion is perfect. In fact, Dinnerstein's Goldberg (Telarc CD80692) is now my third favourite version of this work, my favourites being Gould's 1955 and 1981 versions. What Gould absolutely nails when playing Bach was to my mind identified perfectly by Norwegian pianist Leif Ove Andsnes, who in an NPR interview said: 'The miracle of Gould is for me his touch, and the floating quality of his polyphonic playing, where the vertical and horizontal elements in the music are in perfect balance. And the millions of nuances within each voice in a four-part fugue, for instance—it's like four brilliant minds working at the same time. That part of Gould was pure genius, and makes both his early and his late Goldberg Variations desert island recordings."

After many enjoyable hours with Bach I resurrected an old warhorse: 'Don't Smoke in Bed' by the Holly Cole Trio... or for me a new warhorse because somehow I lost my original copy a few years ago. (I probably left in a loaner CD player I returned to the distributor... I lose a lot of CDs that way!) From the very first notes I remembered why this CD became ubiquitous as a demo disc at hi-fi shows right around the world. It's an amazingly-recorded CD, with David Piltch's double-bass ready to reveal the low-end limitations of any loudspeaker, and Aaron Davis's piano set to highlight any tonal irregularities, while Holly Cole's stunning voice either soars over the instruments or whispers and croons in the cracks between the notes. And I was reminded how nice it is to hear real strings rather than synthesised ones, and even a real lap steel guitar on Don't Let the Teardrops Rust your Shining Heart... and what a great version

of Ben Watt's (from Everything but the Girl) it is. Actually, every single track on this CD is a great version, whether it's Cole Porter's *Get out of Town*, Willard Robinson's *Don't Smoke in Bed* or Casey Scott's *Cry (If You Want To)*. Through it all, the Parasound duo was audibly invisible... all I was hearing was the music, being delivered better-sounding than I ever remember it. For me, there is no greater proof of a superb amplification chain.

During my listening sessions I used three different speaker set-ups: a floorstanding pair of speakers, the same pair but with a subwoofer, and a smaller pair of bookshelf speakers also both with and without a subwoofer. The Parasound combo worked brilliantly across all four speaker combinations, but simply excelled when the subwoofer was in the mix, particularly with the floorstanding speakers, because I could set the crossover at such a low frequency that the subwoofer integrated perfectly, so I was getting full range from the floorstanders and only the sub-bass from the subwoofer. So if you haven't previously considered a 2.1 system for stereo, now is the time to start thinking about it ... because it really works a treat!

CONCLUSION

LAB REPORT ON PAGE 30

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CONTINUED FROM PAGE 30

LABORATORY TEST RESULTS

First up, I want to make it clear that very, very few of these results can be compared against Parasound's specifications because whereas Parasound specs each amp separately, *Newport Test Labs* tested the P5 and A23 as a pair so, for example, the distortion results are the sum of the P5's THD and that of the A23. So each individual component would have lower levels of distortion than is shown here. [*Editor's Note: I requested the testing be done this way because in practise, this is the way most people will use their Parasound combo in real life.*]

Looking at the frequency response first, you can see that the overall bandwidth of this pre/power combo is very wide, being just 3dB down at 4Hz and 116kHz. Even if you constrain the dB limits, the overall response extends from 9Hz to 57kHz \pm 0.5dB. Across the audio band (20Hz to 20kHz) the response is even flatter again, as you can see from Graph 8, where the black trace (the response into a standard non-inductive 8 Ω laboratorygrade load) is just 0.3dB down at 20Hz and 0.1dB down at 20kHz so, normalised, the re-

Very few amplifiers are capable of this high standard of performance

sponse is 20Hz to 20kHz ±0.15dB. The other (red) trace shows the amplifiers' frequency response when driving a load that simulates that of a typical two-way loudspeaker system... in other words, a 'real-life' load.

You can see that the performance of the Parasound is virtually identical to that into an 8Ω load, meaning the A23 (in this case) will sound the same no matter what speakers it's being used to drive. Very few amplifiers are capable of this high standard of performance.

However the linearity of the frequency response does come with one proviso, which is that the tone controls circuit needs to be defeated to achieve this response. The reason is shown in Graph 6, where you can see the top (black) trace, with the tone controls switched out of circuit, is very flat (note the different vertical scale compared to Graph 8) whereas the lower (red) trace shows the response with the tone control circuit active, but with the bass and treble controls at their nominal '0' position. As you can see, although the frequency response is still relatively flat (1.2dB down at 20Hz and 0.85dB down at 20kHz), it's not in the same league as the response above it. Note that because of the overall differences in absolute levels between





the two traces, output volume will increase when the tone controls are switched out of circuit, which will tend to make this setting sound 'better' than the other, simply because it's louder, and it's a peculiarity of human hearing that we tend to judge louder sounds as being 'better'... even if they're otherwise identical to the quieter sounds against which they're being compared.



Graph 8: Frequency response of line input at an output of 1-watt into an 8-ohm non-inductive load (black trace) and into a combination resistive/inductive/capacitive load representative of a typical two-way loudspeaker system (red trace). [Parasound P5 Pre & A23 Power Amplifiers]

If you are using the tone controls, I'd suggest erring on the side of caution, because the bass tone control offers far more boost (and cut) than most tone control circuits—around 17dB, compared to the more usual 10–12dB. The treble circuit also offers an unusually high level of boost, and one that doesn't appear to be particularly well shelved. However, so long as you use modest levels of boost

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(that is, don't turn either control past its '3 o'clock' position) I would not anticipate any issues.

Channel separation was good, but not particularly so, particularly at high frequencies, where it was measured at 49dB. This result might have been improved by using balanced wiring connections between the P5 and the A23: Newport Test Labs for some reason best known to itself used the unbalanced connections. Cable length and routing would also affect this result. That said, the result is more than will be required for this pair to deliver audibly excellent stereo imaging and channel separation. Level matching between channels was slightly less accurate than I am used to seeing, but the 0.5dB mismatch is tiny and will be completely inaudible, not least because it will certainly be less than will inevitably be introduced by your loudspeakers. Plus, of course, you could match the channels perfectly using either the balance control on the P5 or the volume controls on the rear of the A23. Interchannel phase errors were low, particularly at low frequencies.

Distortion levels were very low across the board, and particularly low at lower output levels, which will be where this powerful amplifier will be operating most of the time in normal domestic applications. Graphs 1 and 2 show THD into 8Ω and 4Ω loads at an output level of 1-watt and you can see that very few harmonic distortion components are present in the output, and the few that are present are low-order (and therefore sound pleasant to the human ear) and very low in level, so their contribution to the overall sound would be barely perceptible (if at all). The 8Ω result is clearly the better of the two, with a second harmonic at -96dB (0.00158%), a third harmonic at -100dB (0.001% THD), a fourth harmonic at -110dB (0.00031%), a fifth harmonic at -115dB (0.0001778%) and a sixth at -118dB (0.0001259%). The noise floor is significantly more than 120dB down over most of the audio band, increasing only at very low frequencies, where you can see it's at around -100dB. This put the overall THD+N figure at a very good 0.01%, as you can see in the tabulated results.

Distortion levels increased with increasing output but even at full rated output— 125-watts into 8Ω (Graph 3) and 200-watts into 4Ω , (Graph 4)—all harmonic distortion components were more than 90dB down (0.0031623%) and most were more than 100dB down (0.001%). Although higher-order distortion components are now present in the output, it is the lower-order components that dominate. Note that the noise floor has dropped down closer to -140dB across most of the audio band, though the very low-frequency noise (mains and mains-related) still sits at around -100dB.









Parasound A23 Power Amplifier — Power Output Test Results

Channel	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8 Ω	159	22.0	159	22.0	159	22.0
2	8 Ω	147	21.7	147	21.7	147	21.7
1	4 Ω	254	24.0	254	24.0	254	24.0
2	4 Ω	227	23.6	230	23.6	226	23.5
1	2 Ω	200*	23.0*	378	25.8	378	25.8
2	2 Ω	200*	23.0*	325	25.1	325	25.1

Note: Figures in the dBW column represent output level in decibels referred to one watt output.

* Protection triggered. Auto-resetting once power level reduced.

Parasound P5 Preamp & A23 Power Amplifier — Test Results

Test	Measured Result	Units/Comment		
Frequency Response @ 1 watt o/p	9Hz – 57kHz	-1dB		
Frequency Response @ 1 watt o/p	4Hz – 116kHz	-3dB		
Channel Separation (dB)	67dB / 66dB / 49dB	(20Hz / 1kHz / 20kHz)		
Channel Balance	0.5	dB @ 1kHz		
Interchannel Phase	0.04 / 0.11 / 2.02	degrees (20Hz / 1kHz / 20kHz)		
THD+N	0.01% / 0.004%	@ 1-watt / @ rated output		
Signal-to-Noise (unwghted/wghted)	78dB / 85dB	dB referred to 1-watt output		
Signal-to-Noise (unwghted/wghted)	97dB / 102dB	dB referred to rated output		
Input Sensitivity (Bal or Unbal Input)	31mV / 345mV	(1-watt / rated output)		
Output Impedance	0.01Ω	@1kHz		
Damping Factor	800	@1kHz		
Power Consumption	0.77 / 56.25	watts (Standby / On)		
Power Consumption	86.21 / 478	watts at 1-watt / at rated output		
Mains Voltage Variation during Test	238 - 245	Minimum – Maximum		





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Thanks to the reduced noise floor, overall THD+N was measured at 0.004%.

Intermodulation distortion was very low, as you can see from Graph 5, which shows CCIF-IMD using test signals at 19kHz and 20kHz. The resulting IMD components at 18kHz and 21kHz are around 80dB down (0.01%) and those at 17kHz and 22kHz are nearly 100dB down (0.001%). There is a small signal regenerated at 1kHz, visible at the far left of the graph, but it's around 92dB down (0.0025119%).

Speaking of noise, it was very low, as you can see from the tabulated figures. Referenced to an output of 1-watt, *Newport Test Labs* measured S/N ratio at 78dB unweighted and 85dB weighted. Referenced to rated output, these figures improved to 97dB and 102dB respectively, outstanding results both.

Absolutely outstanding was the A23's damping factor, which *Newport Test Labs* measured at 800, off the back of an output impedance of just 0.01Ω . This means the A23 will be able to control even the most undisciplined loudspeaker cones, thanks to a damping factor that, according to speaker guru Floyd E Toole, is ten times greater than will ever be actually required.

output to 200-watts, at which point the amplifier would otherwise have been delivering continuous current of 20 amps. Unlike many amplifiers, whose protection circuits require you to turn them off, then back on again to reset the protection circuit before you can continue to listen to music, the A23's circuit resets itself automatically (and almost instantaneously) so in the extremely unlikely event that it trips during normal programme material, it won't cause any inconvenience.

Square wave performance was outstanding, as you'd expect given the Parasound's performance in the frequency response and damping factor tests. Nonetheless, the 100Hz oscillogram exhibits some tilt, as a result of the overall response being 3dB down at 4Hz. The 1kHz square wave verges on perfection, while the 10kHz square wave shows only the slight rounding that would be expected given the measured 116kHz bandwidth. Performance into a capacitive load was outstanding, with only a tiny amount of overshoot and only a few cycles of quickly-damped ring. As a result-and in conjunction with its proven performance into 2Ω loads—the Parasound A23 will be completely stable into even the most difficult and demanding loudspeaker loads.

The Parasound P5 and A23 perform synergistically as an outstanding pre/power duo, with particular kudos due the A23

The same could also be said of power output, because the Parasound A23 proved to be able to deliver far more power than most audiophiles will ever require-no matter how inefficient their loudspeakers-with Newport Test Labs recording 'both channels driven' power outputs of 147-watts into 8Ω loads, 230-watts into 4Ω loads and 325-watts into 2Ω loads. The fact that the Parasound will deliver even higher output levels when only a single channel is driven mean that it's capable of even higher levels of 'dynamic' power, so you'll get even more power again on musical transients. Importantly, unlike many competitive amplifiers, the Parasound was able to deliver these very high power output levels at the frequency extremes (20Hz and 20kHz), as you can see from the results tabulated in the power output table (and shown graphically in the bar charts that accompany this equipment review). The only point at which the Parasound revealed a limitation was when driving 2Ω loads at 20Hz, where the amplifier's protection circuitry cut-in to 'limit' power

Input sensitivity testing returned the voltages I'd expect, but I was surprised to find that the sensitivity of the unbalanced inputs—31mV required for an output of 1-watt, and 345mV in order for the amplifier to deliver its rated output—was almost identical to that of the balanced input.

Mains power consumption was fairly high no matter what power levels the amplifier is delivering, and peak at 478-watts, but I'd plan on the pair drawing an average of around 100-watts from your mains in day-to-day use, so less than a couple of light bulbs.

In standby, the pair drew only 0.77-watts, so if measured individually each one would easily meet the Australian standard for stand-by power consumption.

Overall, the Parasound P5 and A23 perform synergistically as an outstanding pre/power duo, with particular kudos due the performance of the A23.

But then given the credentials of its designer, I would not have expected anything less! - *Steve Holding*







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ON TEST

Avid Sequel SP

AVID

TURNTABLE

never got to hear the original Avid Sequel, which I gather was a mistake on my part, because from all reports, it was a fantastic bit of kit. So I was quick to agree to a commission to review an improved version of the Sequel, the Avid Sequel SP, which now benefits from the newest version of Avid's DSP variable speed power supply, a twin-belt drive and the latest (improved) version of the company's famous 'upside-down' main bearing.

THE EQUIPMENT

After the motor, the bearing is the single most important component on a turntable, because it's the major source of noise (or, rather, lack of noise) during playback, can be a contributor to wow and flutter and also can cause frequency-induced modulation distortion. Avid is one of very few companies that uses an inverted bearing, so-called because it's 'upside down' compared to the bearings used by the majority of turntable manufacturers. The reason inverted bearings are so rare is because they're more difficult and expensive to manufacture, and they're a bit 'fiddlier' to assemble because of the use of a separate thrust bearing. As for that design of that bearing, it comprises an inverted stainless steel thrust shaft at the tip of which is a tungsten carbide steel bearing that in turn rotates on a piece of sapphire. Tungsten carbide and sapphire being the materials they are, the bearing is extremely strong, but you still have to take care during assembly (if you're doing it, rather than letting your dealer do it for you, which I'd recommend) to make sure you lower the heavy drive hub down over the spindle perfectly vertically, and slowly. (Unlike other similar bearings, Avid's has no 'air cushion' to prevent the bearing dropping too quickly, because Avid's bearing has an air vent at the top to allow air to escape as it slides downwards). If you are doing it yourself, just follow the detailed instructions in the manual *exactly*. As noted by my fellow equipment reviewer Chris Croft in his excellent review of the Avid Ingenium (*Australian Hi-Fi Magazine, Volume 45 No 2*) Avid's otherwise lengthy (five years) warranty specifically excludes damage to the thrust bearing and spindle.

There are many excellent reasons for using an inverted bearing. Conrad Mas told Australian Hi-Fi's Editor, Greg Borrowman, several of those reasons during a recent visit to Australia, being that the bearing has a low centre-of-gravity; the point of contact doesn't move; there's no 'rocking'; and rumble is reduced because of the minimal contact point. According to Mas, the point of contact does
Avid Sequel SP Turntable ON TEST

When you buy the \$11,445 Sequel SP, you're getting exactly the same bearing that's used in Avid's top-of-the-line Acutus Reference SP, which retails for nearly three times as much (\$31,220)

not move laterally because it is held captive in a specially shaped sapphire jewel while there's no rocking because Avid uses only a single bush rather than the usual two-bushes or a full sleeve. According to Mas, both these design features reduce bearing noise. As for the improvement to the bearing fitted to this SP model, it was a change in the formulation and construction of the sintered bronze used in it. According to Mas, the noise of the earlier bearing was so low that it was possible to hear the sound of the oil 'shearing' as it moved from one side of the bearing to the other. What Avid did to cure this was to change the bronze to allow a greater volume of lubrication at the bearing surface, which in turn allowed it to increase the bearing gap, which eliminated the shearing noise.

One thing you may not know about Avid is that the company uses exactly the same bearing in all its models, so when you buy the \$11,445 Sequel SP, you're getting exactly the same bearing that's used in Avid's top-ofthe-line Acutus Reference SP, which retails for nearly three times as much (\$31,220).

Another thing you might not know about Avid is that it manufactures everything inhouse, in its own factory in Cambridgeshire, in the United Kingdom... even the motor it uses in many of its turntables. (Mas says he also uses motors made for him in France, but they're modified in the Avid factory prior to installation. It's one of these modified motors, a 24-volt, 140mNm a.c. synchronous model, that's used in the Sequel SP, whereas the Acutus Reference SP is equipped by a similarly-specced motor that's hand-built by Avid.) Although Mas originally subcontracted most of his manufacturing, he became dissatisfied with the performance of his subcontractors, mainly in terms of their ability to deliver on time. The advantage of moving everything in-house is that he now has total control over quality, quantity and can easily make 'proof of concept' prototypes before going into full-scale manufacture.

Not that Avid uses the total capacity of its factory to manufacture turntables and (more recently) electronics. Avid also makes equipment racks and platforms, not to mention cables. And there's still around 20 per cent spare manufacturing capacity which Avid has variously used to make components for Aston Martin, Repsol Honda, Ferguson Hill, and Talk Electronics, amongst others. (*Editor's Note: All the foregoing information was obtained from an interview with Mas that was published in Australian Hi-Fi Magazine Volume 46 No 1.*)

Another of the improvements to the original Sequel (and the one that gives it its 'SP' status) is the inclusion of Avid's Vari-SPeed power supply to drive and control the turntable motor. Unlike the original model, where you only got to choose between 33.33 rpm and 45 rpm platter speeds, the new Vari-Speed controller allows you to vary the speed away from 33.33 rpm and 45 rpm. Why on earth would you want to do this? For the simple reason that the object when playing back a piece of music on a turntable IS NOT to have it replay at exactly 33.33 rpm (or 45 rpm) but instead to have the piece of music replay at exactly the same musical pitch at which it was recorded, so that if a musical work was recorded so that Middle C (C4) was at a pitch (frequency) of 261.63Hz, then Middle C as recorded on an LP you're playing would actually play back at 261.63Hz. In an ideal world, this would always happen but actually, it rarely does because of the fact that one side of an LP can only contain 22 minutes of music if reasonable fidelity is to be maintained. (Yes, I know ... you can squeeze more music per side of an LP than 22 minutes-and many LPs do-but fidelity drops dramatically when you do. In fact for maximum fidelity, no record producer should ever put more than 14 minutes per side on an LP when cutting at 33.33 rpm. At 45 rpm, the maximum playback time for maximum fidelity is just 9 minutes per side!)

This per-side time limitation on LP playback introduced a problem for recording engineers. What should they do if the musicians took 23 minutes to play back a piece? Tell them to play it again, but a little faster? Yep, sometimes this is exactly what they did! But on other occasions, rather than throw away money asking an entire orchestra to do a second take at a faster tempo (which costs, literally, thousands of dollars!) they'd instead send the orchestra home on time and

on budget and then, during mastering, they'd deliberately 'speed-up' the tape playback speed by about six per cent, which would reduce the time it took the piece to play back, and subsequently allow it to fit within the 22 minute per side limitation. The only problem is that when they sped up the tape replay by six per cent, this also increased the pitch of middle C by six per cent, from 261.63Hz up to 277.33Hz... which means that anyone who plays back the resulting LP at exactly 33.33 rpm would find that so-called Middle C wasn't Middle C anymore, but D-Flat! (The exact pitch of D-Flat is 277.18Hz). So not only is the music being played back from the LP faster than it should, it's also being played back at a higher pitch, so the music just won't sound the same... and if the speed of your turntable isn't adjustable, there's not a damn thing you'll be able to do about either problem.

If, however, the pitch of your turntable is adjustable, as on the Sequel SP, you could just slow the platter speed down by 6 per cent, which would simultaneously have the music replay at the right speed, *and at the correct pitch*! Simple. But, actually, not so simple. The problem with most adjustable speed controls is that when you adjust them, they then cannot maintain whatever 'non-standard' speed you have chosen (in this case, a non-standard speed of 31.33 rpm) because they tend to 'hunt' around either side of the desired speed,

AVID SEQUEL SP TURNTABLE

Brand: Avid

Model: Sequel SP Category: Turntable RRP: \$11,445 (without arm or cartridge) Warranty: Five Years Distributor: National Audio Group Address: Level 1,585 Burwood Road Hawthorn VIC 3122 (3) 9230 2088

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ON TEST

Avid Sequel SP Turntable



Performance of the Avid Sequel SP and SME IV was so good that they were able to extract from the Ortofon 2M Blue a level of performance that I would not have believed possible...

and this 'hunting' action causes increased wow and flutter, which then ruins the sound. In the DSP Vari-SPeed controller, Avid uses a Digital Signal Processor to eliminate 'speed hunting' so you get an exact and steady rotational speed.

There are three buttons on the fascia of the DSP Vari-SPeed controller, one (labelled 'Play') for starting and stopping the platter, one for selecting 33.33 rpm and the other for selecting 45 rpm. To adjust speed away from 33.33 or 45 rpm, you first select the speed you want, then press and hold both speed selection buttons at the same time. This forces the controller into the speed adjustment mode, after which the 33.33 rpm button slows down the platter and the 45 rpm button speeds it up. Once you've attained your desired platter speed (by means of making sure you're at a desired pitch by using a tuning-fork, or an electronic tuning device you simply press both buttons simultaneously again and the speed setting will be stored in (volatile) memory. Don't be tempted to try to play an LP at a ridiculously low or high speed, because Avid says that doing so will overload the power supply and may cause it to fail... in which case it says it won't cover you under its warranty. (The manual specifically states: 'Do not see how fast or slow you can go as this will overload the supply and it will possibly become faulty. Abuse is excluded from our wattanty [sic].') I think it would have been more sensible of Avid to design the circuit in such a way that it was not possible to overload the supply-even if this meant limiting speed adjustment to ±10 per cent—rather than allow its customers to run any risk of damaging their power supplies, but perhaps there's a technical reason that this was not possible. I guess the answer is to either be sensible with your speed adjustments or don't use this feature at all. Not wanting to

be responsible for any damage to a loaner machine, and possibly invoke the wrath of the editor, I didn't use this feature at all...

Whereas most turntables use only a single rubber belt (flat or round) as the drive connection between the motor and the platter, all Avid models except the Ingenium and the Diva II use two belts, both of them round. Avid's website says the use of twin belts enables 'better control over platter dynamics and increased stability under load.' Interestingly, the company also recommends that for best performance, you should change these belts every twelve months. I personally think this is overkill—once every five years should be fine (so long as you're prepared to put up with a squeak at start-up, about which more later), but if you take Avid's advice, you'll be up for \$178 per year, because the belts retail for \$89 each, a price that I personally think is rather too steep. When we asked Mas if he could provide more technical information about the rationale for using two belts, Mas told Australian Hi-Fi's editor Greg Borrowman in a personal email that the driving torque of a typical turntable motor was about 10-15mNm (milliNewtonmetres) whereas the Sequel SP's motor has a driving torque of 140 mNm, a factorial increase of around ten times. 'Like a sports car with a powerful engine you need big fat tyres to put all that power onto the road,' he wrote. '(It's the) same with using twin drive belts, with all that motor power it enables greater traction and control over the platter.' As for the use of round section belts, rather than flat belts, Mas says that round section belts work better with suspended turntables than typical flat belts.

One side-effect of this massive torque is that I noticed that the Avid Sequel SP emitted a single, very tiny high-pitched 'squeak' whenever I switched it on when the speed was set to 33.33 rpm and multiple, tiny,

lower-pitched 'stuttering' sounds when it was first switched on with the speed set to 45 rpm. All these sounds were obviously caused by a slight slippage of the belt around the drive pulley as it spun up to speed. According to Avid, this only happens when the belts are more than two years old or have become slippery through contamination. It subsequently transpired that the turntable loaned to Australian Hi-Fi for this review was Avid's two-year-old demonstrator model, and was still using the original belts. However, there also remained the possibility that I accidentally transferred some sweat or grease onto the belt and/or the platter during installation. It did not affect performance in any way, so I didn't worry about it, but does show that you should wear clean cotton gloves whenever you install the belts.

Avid's Sequel SP is available in either a black finish (as per my review sample) which looked great, or in a silver finish, of which I've only seen photographs, but what I saw made me think I'd prefer the silver finish.

IN USE AND PERFORMANCE

The Avid Sequel SP comes standard without an arm or a phono cartridge, so to save its long-suffering and highly underpaid reviewers some effort, Australian Hi-Fi Magazine requires that distributors pre-fit tonearms and cartridges to turntables sent for review. When I unpacked the Avid Sequel, I was not surprised to find that National Audio Group had mounted an SME Series IV tonearm (which retails for \$4,343) on it, but I was totally surprised to find an Ortofon 2M Blue at the end of that arm. The Blue is an excellent phono cartridge, but at \$295, not exactly in the same league as either the SME Series IV or the Avid and, with a lateral dynamic compliance of 20 μ m/mN, only just squeezes in as being technically compatible with the SME Series





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IV as regards tonearm/cartridge resonance. Surely if you were going to fit a high-output cartridge you'd have gone for the 13µm/ mN Ortofon MC1 Turbo (\$305) or, if you wanted a moving-coil cartridge, the Ortofon Cadenza Blue at \$1,777, whose compliance comes in at 12µm/mN. A quick e-mail later it turned out that National Audio Group fits Ortofon 2M Blues to ALL the turntables it demonstrates in its showrooms, and has a very good reason for so doing. 'We want people to hear what the turntable is doing and not the cartridge,' wrote John Ong, National Audio Group's National Sales Manager. 'So when we demo, the client can see what each turntable does to the sound and decide how high they want to go.'

In other words, Ong is recommending that you choose your turntable first, and then your cartridge. It made sense to me, particularly when I realised that if I were going to be demonstrating seven different turntables on a daily basis, and possibly having customers handling them, I wouldn't like to contemplate the wear and tear (or the potential for damage) on over twelve thousand dollars' worth of phono cartridges. Much better to do demos with a cheap cartridge and then fit the really good ones only to those turntables that are going to the customers' homes! (And if you're finding this talk of cartridge compliance confusing, you need to remember that in addition to choosing a cartridge based on how it sounds, you also have to ensure that the cartridge you choose is mechanically compatible with the arm you're mounting it in, since all tonearm/cartridge combinations will resonate at a particular frequency. The idea is to get a well-damped resonance at exactly 10Hz, though in practise, so long as there's good damping, the tonearm/cartridge resonant frequency can be anywhere between 8Hz and 12Hz. If you don't want to do the maths (Resonant Frequency = 1000/ [6.28*square root (M*C)], where M is the mass of the arm and cartridge and C is the compliance of the cartridge) or use an online calculator (www.resfreq.com/resonancecalculator.html) you can simply play a test record with test tracks from 8Hz to 15Hz and observe the frequency at which the stylus/cartridge combo resonates (wobbles) the most. Suitable test records include Ortofon's Pick-Up Test Record (0002) or Shure's V15 Type V Audio Obstacle Course LP. (You should always double-check tonearm/cartridge resonance with a test record anyway, even if you have done the math, because different manufacturers measure compliance different ways,



so although the mathematical approach will give you a figure, that figure will not be correct if the manufacturer hasn't measured compliance dynamically or used a frequency other than 10Hz when testing.)

You will also have to align the cartridge, of course, but your Avid dealer will have a tool for that, because in addition to turntables (and phono preamplifiers, and cables, and equipment supports, and spirit levels and isolating feet) Avid now sells excellent tonearm/cartridge alignment protractors for SME, Rega and Linn arms.

I was pleased to find that the Avid Sequel SP provided for review had been perfectly set up as regards cartridge alignment, according to my own alignment tools, so it's good that Avid's alignment protractors are in agreeance with my own. Despite being a suspended turntable it's really easy to check alignment because the design of the Sequel SP allows you to separate the platter and tonearm from the suspension, so you can set them on a rock-steady surface when aligning them, rather than trying to align them on a wobbly sprung suspension. This is really smart thinking on Avid's part... it certainly impressed me. I was also hugely impressed with the scheme Avid has implemented to allow you to loop the two belts around the 'shelf' under the platter, and correctly connect them to the drive motor. For this purpose, Avid provides a 'belt alignment pin' that stretches the belts out and holds them in place until you've positioned the platter. Then, by slightly rotating the platter, the belts slot into position on the dual belt drive pulley, after which you simply remove the belt alignment pin. I was amazed at how easy this was to do. In fact it was actually easier to fit Avid's dual belt system than it was to fit some of the belts on the many single-belt turntables I've owned over the

years. So my hat's definitely off to Avid for this masterpiece of design!

But my hat went back on when it came to the power switch on the Sequel SP's power supply, which is located underneath the unit, rather than on the front, sides or rear. My problem was that I couldn't initially get my fingers underneath the power supply to press the button, so I had to lift the front edge of the supply up with one hand to make sufficient room for me to reach underneath to switch it on unit with the fingers of the other hand. My wife had no problems with the switch though, and in the end I developed a technique for putting my hand backwards against the unit, in which position my fingers just fitted, and I could switch it on and off. But every time I did this, it caused me to wonder why the switch wasn't positioned where it'd be easier to use. (I even wondered whether it had been deliberately hidden so that anyone unfamiliar with the care and operation of the Sequel SP turntable wouldn't be able to use it.)

In a further niggle, I found that when I turned the power supply on I heard a very quiet 100Hz buzz. It was so very quiet that it subsequently turned out that the only reason it was audible was that the surface on which I had it sitting was acting as a soundboard at the frequency of the buzz and amplifying it (plus there was also the fact that my listening room is very, very quiet). Luckily, the cord connecting the supply to the turntable motor is usefully long (1.5 metres), so I was able to move the supply to a different surface and additionally put a sponge under it to decouple it from that surface. The buzzing then became inaudible... though I could still hear it if I put my ear down close to the supply.

So, after having assembled the turntable and isolated the power supply, there was

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ON TEST

Avid Sequel SP Turntable

nothing much else to do other than put on an LP and settle back to enjoy the music. I had to wait a few seconds, however, because the torque forces the motor applies to the platter at start-up are so powerful that they 'rock' the turntable's suspension and set up an oscillation that

takes a couple of seconds to dissipate, and it was only after the suspension had settled that I was prepared to risk lowering the stylus to the record's surface.

'Out of the box', the platter speed was absolutely exact at both 33.33 and 45 rpm. This surprised me, because I can't think of any turntable that's been exact at both speeds. Normally, one that's exact at 33.33 will be slightly out at 45rpm and vice versa. Also, take particular note that I wrote 'absolutely exact' , which I did for a reason... and that is that mostly, even on a turntable that's rotating at, say, exactly 33.33 rpm, you'll be able to notice a tiny, almost infinitesimal movement in the strobe over a long period of time. With the Avid Sequel there was no strobe movement at all: None. Zip. Nada. This is speed accuracy and speed stability at its finest. It just doesn't get better than this.

Given this superb speed accuracy I was expecting equally great things when it came to wow and flutter, and I was right. There was none of either: No wow, nor any flutter. Amazing. After rumble, these are the two greatest banes of any turntable and the Avid Sequel SP proved to have neither of them. Nor did it have any rumble. I went through my entire collection of slow piano works and my quietest pressings trying to find even the slightest chink in the Sequel SP's armour, but all to no avail. In the end, I resorted to test records to listen to low- and high-frequency pure sine waves, and to unmodulated grooves to see if I could hear any quavering in the reproduced tones, or any bearing or motor noise, but yet again, the Avid Sequel SP performed so majestically that I took my hat off again. Incredibly good performance. If you're looking for a record to check for wow and flutter, I'd suggest a set of two German LPs that's actually called 'Slow Music' that's played by Jeroen van Veen (piano), and has 78 minutes of famous slow piano pieces spread across four sides, in a beautiful studio recording, captured on 180gram vinyl. [Editor's Note: Newport Test Labs measured the wow and flutter of the Avid Sequel SP at 0.05% unweighted RMS, which is the best result ever recorded for a turntable ... and one so low that it must be approaching the limits of the test record itself.]

When it came time to listen just for the pleasure of listening, rather than the chore of reviewing, I just had to spin up 'Be Here Now', Oasis' follow-up on 1995's '(What's the Story) Morning Glory', itself a follow-up on the band's debut album 'Definitely Maybe.' Why did I choose Oasis? Because in my view the band must be nearly single-handedly responsible for the resurgence of interest in vinyl. I am not exactly sure of the sales figures, but I think you'll find that Oasis has sold more LPs in recent years than any other single artist or group. I personally don't think 'Be Here Now' is the band's greatest moment (though it works as a great document of a turnaround in the band's history) but listening to D'You Know What I Mean? on the Avid Sequel SP, the messy soundscape resolved itself beautifully, while on All Around the World the super-lush string and horn sound is wonderful, and the track becomes such a living thing that you can instantly hear why Noel Gallagher still thinks it's one of the best songs he ever wrote, and since none other than George Martin proclaimed him to be 'the finest songwriter of his generation', Gallagher's opinion obviously counts for something.

I also spun up Neil Young's 'Harvest' LP, mainly because for me it's one of the finest albums ever recorded. I remember buying it as a teenager some time back in the 70s and wearing it out within a year or two (probably helped by the equipment I was using back then), but I've since worn out-or inadvertently ruined-more recent pressings. The Avid Sequel SP instantly brought the album to life, and what an album it is, with tracks such as the title track, as well as Needle and the Damage Done, Heart of Gold, Alabama, Old Man... all amongst Young's finest songs, by far (IMO) and all on the one album. But I can't commit that comment to print without pointing out that if I had to name a "top three" from Young's oeuvre, those three would be, in no particular order, Helpless, After the Goldrush and Only Love Can Break Your Heart.

Since I was on a roll of bands (and performers) that have contributed to the vinyl revolution, making this something of a thematic review of the Avid Sequel SP, plattering 'Sgt. Pepper's Lonely Hearts Club Band' was a no-brainer—the world's first concept album; a 40-piece orchestra; once ranked by *Rolling Stone* as the 'Greatest Album of All Time'; and one of the best-selling albums in history (as of this year, it's sold more than 32

million copies). Once again, the Avid Sequel SP was pitch-perfect, such that I was singing along with Lucy in the Sky with Diamonds, tapping my feet in Getting Better, feeling sad about my daughter during She's Leaving Home, and having my spine tingle at the orchestral crescendo of A Day in the Life. Spine-tingling too was Billy Joel's '52nd Street' album (on Impex limited edition vinyl, not Columbia commercial!) right from the drum shots that kick off Big Shot, but it's the warmth of vinyl sound that keeps dragging me in, plus that unnerving feeling of musical 'rightness' that I just don't get when I listen to CD (and yes, I also have '52nd Street' on CD, and I did the comparison). Unlike some audiophiles, I think '52nd Street sounds great even in its CD version, but every time I go back to the vinyl, I find it's like slipping on a pair of comfy slippers... the sound is so much more natural on LP. (There's another a great example of the superiority of LP over CD on this album, by the way, which occurs at the close-out to Until the Night on the B side. On LP, Joel's final piano chord sustains and sustains until it finally fades away, whereas on CD the same note sustains for a short while, but then just suddenly disappears.)

CONCLUSION

It was only after I thought I'd finished reviewing the Avid Sequel SP and delivered it to Newport Test Labs for testing that I realised I had written absolutely nothing about the sound of the Ortofon 2M Blue itself, nor had I once felt moved to exchange it with another cartridge... which could only mean that the performance of the Avid Sequel SP and SME IV was so good that they were able to extract from the 2M Blue a level of performance that I would not have believed possible unless I'd heard it with my own ears... which is exactly what I did. So how much better would the sound be using a phono cartridge whose quality was more commensurate with that of the Sequel SP and SME IV?

If you love vinyl, you should rush down and audition an Avid Sequel SP right now. I can assure you that you will never, ever, regret that you did! - - - Ernest Denman





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SOUND TRAVELS

Being able to assemble a rack of McIntosh audio equipment was a dream come true for one audiophile, who says they're perfect to drive his Magneplanar 3.7s





GOLDMUND EIDOS 17, MIMESIS II AND PROLOGOS WIRELESS SYSTEM

'There's something about Swiss precision and simplicity that exudes a sense of exclusivity and technical gravitas'

SOUND TRAVELS

This issue, Edgar Kramer visits a music lover who, wisely, takes room acoustics very seriously while loving his big American muscle McIntosh kit.

Edgar Kramer: Do you have a first memory, a first unforgettable musical experience that left an impression?

PS: I was visiting my auntie's home when I had my first taste of hi-fi sound. The sound of vinyl playing on their three-way speaker system was so pleasing to my ears. From then on, I started my quest in pursuit of musical nirvana.

EK: So did that alone start you on the hi-fi journey or something else?

PS: That experience kicked off my unquenchable thirst to replicate live sound and I soon realised that I needed to have decent audio equipment for that to happen.

EK: Where do you think your system is going, or has it arrived?

PS: I am very satisfied with my present audio system, which I believe has reached a milestone of what I want to achieve. And from this point forward, my focus will be on fine-tuning the system.

EK: What's your favourite piece of equipment at the moment, something that you wouldn't sell?

PS: My McIntosh audio equipment. It was a dream come true to be able to assemble electronics from one of the most respected and formidable brands in the audio industry.

EK: What do you see as your next hi-fi purchase or upgrade?

PS: I am toying with the idea of improving further my music streaming capabilities by investing in a better Ethernet to S/PDIF Converter such as the Simple Design Rendu and having a reference DAC such as the Weiss Medus.

EK: What's the most memorable pair of speakers (or system as a whole) you've ever heard?

PS: The Wilson Audio Alexandria speakers with their imposing presence and authoritative sound. The moment these Wilsons started to sing, it cast an hypnotic, trance-like spell over me that transported me into the realm of auditory senses that is so magical and gratifying to the body and soul.

EK: *Is there a component that you regret selling?*



PS: Yes. I sold my Yamaha KX-580SE, which was a highly-regarded cassette player back in the day. I should have kept it for sentimental reasons and as a memento of my early days as a hi-fi enthusiast.

EK: You have a nicely fitted-out dedicated hi-fi room which you've treated with acoustic panels and bass traps. In your view, what were the improvements gained from the treatments?

PS: The listening environment and the effect of room acoustics play a vital role in the perception of sound that we hear. By installing these treatments, primary reflections are contained, flutter echo is minimised and bass resonances reduced.

EK: How would you describe the sound you're getting from your current system?

PS: I find it so clean and so natural—especially with vocals and acoustic music.

EK: Do you use the same music for comparing components as you do for listening pleasure?

PS: No, I don't. For component comparison, I use compilation or reference CDs that were produced for equipment evaluation





and testing. However, I find these CDs unsuitable for listening. For listening pleasure, I always play music that's familiar to me.

EK: So what genres of music do you listen to mostly and who are some of your favourite artists?

PS: Any genres of music that are relaxing and can soothe the soul. I like Michael Franks, Stacey Kent, Willie Bobo, Clair Marlo and Kilauea, to name a few.

EK: What would be your "desert island" music albums if you could only choose, say three pieces?

PS: Art of Tea by Michael Franks, Let It Go by Clair Marlo and Frédéric Chopin's Raindrop Prelude Op. 28, No. 15 as played by Roger Woodward.

esoterico SOUND TRAVELS

EK: In what way does music affect your life, your emotions and the way you feel?

PS: Music rejuvenates my well-being and takes me back on a memorable trip to a bygone time when life was more simple and carefree. It has such immense power and control that it can dictate my mood and feeling.

EK: Where do you see the high-end audio industry going in the future?

PS: As technology improves, I can see the high-end audio industry gearing towards high-resolution music streaming, digital downloads and DSD playback.

EK: Where would you like the audio industry to go or to evolve to?

EQUIPMENT LIST

Main System Equipment:

- Magnepan Magneplanar
 3.7 Ribbon Dipole Flat Panel Loudspeakers
- McIntosh C500T Fully Balanced
 Vacuum Tube Preamplifier Module
- McIntosh C500C Fully Balanced Controller Unit Preamplifier Module
- McIntosh MC601 Monobloc Quad Balanced Power Amplifiers
- McIntosh MCD550 SACD/CD Player
- McIntosh MCLK12 Mantle Clock
- JL Audio Fathom F112 12-inch subwoofer
- Tascam DA-3000 DSD/PCM HD Audio Master Recorder/Player
- Oppo BDP-105AU Universal Disc Player
- Synology DiskStation DS213Air 8TB NAS Drive with built-in Wi-Fi
- Furman Elite-10Ei Linear Filtering AC Power Conditioner
- QED Genesis Silver Spiral Speaker Cable with 'Airloc' termination
- Mogami 3173 110Ω Digital Audio Cable with Neutrik XLR connectors
- Zu Audio Birth power cables
- Quadraspire Q4L glass shelving Hi-Fi rack
- Primacoustic Broadway Control Columns and Scatter Blocks Sound Panels, MaxTrap Bass Traps and FlexiFuser Diffusers
- Auralex GRAMMA subwoofer isolation riser





GOLDMUND EIDOS 17, MIMESIS II, PROLOGOS WIRELESS SYSTEM



GOLDMUND EIDOS 17, MIMESIS II AND PROLOGOS WIRELESS SYSTEM

here's something about Swiss precision and simplicity that exudes a sense of exclusivity and technical gravitas, be it in the world's best timepieces, the renowned Swiss mechanical and electrical engineering industries or high-end audio. And indeed, luxury audio is the signature of Swiss high-end stalwart Goldmund. The company's products have a clean, elegantly-simple eye-soothing design aesthetic that belies the complexities and intelligence of the advanced circuitry within.

NEW DISTRIBUTION

Goldmund has appointed a new Australian distributor in Melbourne: high-end specialist Absolute HiEnd. I was invited to attend the re-launch of the brand and to audition a system solution assembled from entry-level electronics and mid-level loudspeakers. On show were Goldmund's Eidos 17 Universal Player, Mimesis II Wireless Hub and ProLogos Wireless speakers.

THE EQUIPMENT

Based on the outstanding Oppo universal platform and modified by Goldmund, the Eidos 17 will play Blu-ray 3D (BD Profile: BD-ROM Version 2.5 Profile 5 also compatible with Profile 1 Version 1.0 and 1.1), DVD, CD and SACD as well as -R and -RW versions of all bar SACD. Goldmund has applied its 'mechanical grounding' strategy to the signature solidity of the heavy-gauge chassis. The unit also features its own internal 1GB Persistent Storage (BD Live, etc.), all the latest digital surround sound format compatibility, multichannel outputs and much more.

At the heart of the system and in charge of the connectivity duties is the Mimesis 11 Wireless Hub; the perfect aesthetic and functional match for the Eidos 17 player. The unit features a built-in wireless transmitter (no dongles in sight) and a host of connectivity options to allow for a comprehensive system configuration if required. There are two analogue inputs via RCA, and optical, SPDIF and USB digital inputs (inputs from 1 to 3 can receive stereo audio encoded signals up to 384/32 compatible DSD over PCM) with future options being the possibility of Wi-Fi streaming and additional digital inputs. The Mimesis 11 also offers four digital SPDIF stereo outputs while a maximum of four channels is offered via the single wireless output.

No amplification is required, of course, as the ProLogos speakers are each powered via two new Telos 175 watt amplifiers (one for the tweeter and one for the mid/ bass drivers) and also feature a receiver for wireless operation (Goldmund proprietary protocol I'm told) with the Mimesis II



GOLDMUND EIDOS 17, MIMESIS II, PROLOGOS WIRELESS SYSTEM

"

Promises to deliver the company's trademark fast and detailed presentation...

(a Goldmund Dongle Emitter is required if operating directly via a computer). The solid aluminium vented enclosure is beautifully machined and finished and is home to a 25mm tweeter and two 180mm mid/bass drivers. Goldmund's 'Mechanical Grounding' strategy is also used here and this is achieved via the optional frame which is configured with a single pole/spike which acts as the ground avenue (vibrational drain point) while the entire speaker is supported via an adjustable solid metal frame support. The 'Leonardo2' DSP engine handles phase, amplitude and time correction. The ProLogos Wireless speakers are quoted as having a frequency response spanning from 38dB to 25kHz (-6dB) while

the in-built amplifiers' dynamic range is said to be better than 100dB. There is one digital input and an output for daisy-chaining. The ProLogos measures $90 \times 430 \times 500$ mm (WHD) and weighs in at 35kg per unit without the frame.

Overall the Goldmund system provides a simple solution from source to speakers that is beautifully built, pleasingly styled with typical Swiss simple elegance and promises to deliver the company's trademark fast and detailed presentation. But what else can this system bring to the performance table?







SHOWROOM SESSION

I auditioned the Goldmund system at Absolute HiEnd's headquarters which features a number of lounge-sized studios with acoustic panelling, reasonably high ceilings and thick carpet over concrete flooring—all ingredients for a reasonable acoustic environment promising decent sound.

The electronics were positioned on white Solid Tech racks with a colour tone that almost mirrored the gorgeousness of the Goldmund finish. Hook-up was via Voodoo, Siltech and Crystal cables. Music in hand and without time constrictions, I was able to get a strong impression of the immediate qualities of this outstanding system. For starters, the speakers offer bass depth, power and dynamic dexterity with a sense of overall scale that belies their size no doubt due to the in-built dedicated amplifiers married to the high-quality drivers.

Goldmund's signature speed and detail, as I've previously indicated, were strong presences. Acoustic guitars and piano, in particular, sounded full and exhibited satisfying transient attack.

The system was proficient at separating layers within dense mixes. Each instrument was clearly delineated and independently portrayed within a deep and wide soundstage. Image focus was good, if not outstanding, with some instruments sometimes pulling towards the speakers, although that may have been attributable to a room interaction.

The Goldmund system is extremely detailed down to the lowest microdynamic nuance and overall resolution is exemplary. Having said that, it's most definitely a modern solid-state sound, and in this case, that translates to an uncompromising neutrality over romanticism—you'll most likely find that in many vacuumed glass topologies.

I was also pleased with the tweeter which, aside from the already-commentedon detail retrieval, also provided delicate cymbal sound (and such) without a trace of brightness and with good extension and decay.

CONCLUSION

This is a complete system solution for a certain type of music lover; one with financial independence, of course, as we're talking about a system whose asking price approaches \$100,000.

But the Goldmund system offers a universal player that can cope with just about any format, a control unit that allows wireless operation while providing plentiful connectivity options and a beautiful pair of speakers—even if the look is industrial containing bespoke amplification and DSP correction.

As expected, the build quality is superb and the sonic, functional and cachet benefits of Goldmund ownership are abundant rewards. - *Edgar Kramer*

GOLDMUND EIDOS 17, MIMESIS II AND PROLOGOS WIRELESS SYSTEM

Brand: Goldmund

RRP: \$12,800 (Eidos 17); \$14,500 (Mimesis II; \$57,000 Prologos Wireless System; \$7,500 Speaker Stands. (All at the time of publication Warranty: One year (Electronics); Three years (Speakers) Distributor: Absolute Hi End Address: PO Box 370 Ormond, VIC 3204

P: 0488 777 999

E: info@absolutehiend.com W: www.absolutehiend.com



SVS SB 13-Ultra

SUBWOOFER

VS has been around since 1998, having reportedly been founded by 'a group of audio enthusiasts seeking to develop an alternative to traditional audio manufacturers.' However since 2011 it's been headed-up by none other than Gary Yacoubian, who started out as a retailer more than 25 years ago and now, in addition to being CEO at SVS, also serves on the executive board of the Consumer Electronics Association, which is responsible for the annual audio extravaganza for traditional audio manufacturers that is held every January in Las Vegas, that is... the International CES.

THE EQUIPMENT

SVS has an excellent website, and if you look at it closely you'll see that in the US, where the company is based, the company sells only by mail order. So in order to instil confidence in its American customers, SVS has an impressively detailed 'Bill of Rights' charter that guarantees SVS buyers a no-obligation 45-day in-home trial, a 60-day price guarantee, a 90-day defective exchange policy, a one-year 'No Lemon' guarantee, a trade-up guarantee, a one-year performance guarantee, and a five-year unconditional warranty. However, all but one of these 'Bill of Rights' applies only to consumers domiciled in the USA who purchase direct from SVS itself. In countries where SVS is sold through the usual importer/ retailer arrangement, it is the local distributor that decides the warranty terms and conditions, and Final Link advised us that a standard Australian five-year guarantee applies to all SVS subwoofers sold in Australia.

Still on the subject of SVS's website (which really is excellent!), I was particularly enamoured of its 'Merlin' subwoofer/ speaker matching program, which not only recommends the ideal SVS subwoofer to match with your front-channel speakers, but also the ideal crossover frequency and crossover slope settings to use with your SVS subwoofer. Obviously it doesn't list all brands and models of speakers, but a great many of the most popular models from the world's major multinational speaker manufacturers are listed.

SVS makes the rather extravagant boast that if your speakers are not listed on its Merlin program and you tell them the make and model, they will add it to their tool within 24 hours. I didn't personally try this, but it would be easy enough for you to check whether the company can make good on that promise. The difficulty for SVS is if it doesn't have any information about your particular make and model of loudspeaker, it cannot make an informed recommendation as to the ideal crossover frequency/slope settings that should be used.

The SVS SB 13-Ultra is not pretty, but then again, has anyone ever seen a pretty subwoofer? Unprettiest was the large curved metal grille, though it does have the advantage of providing great mechanical protection for the sub's bass driver. The SB 13-Ultra is fairly large, measuring 457×442×520mm and was heavy enough that it bottomed out my calibrated weighing scales, so it's evidently solid (I later used ordinary bathroom scales to measure the weight at a touch over 42kg... assuming my scales are accurate). Although SVS is based in the USA-in Ohio to be precise-the SVS SB 13-Ultra is built in the People's Republic of China (PRC).

The business end of the SVS SB 13-Ultra is a driver SVS rates with a diameter of '13.5 inches' (343mm). That's actually the overall diameter of the chassis, rather than the more-commonly specified (at least here in Australia) mounting-hole diameter, which I measured at 330mm, but the figure of most interest is the Thiele/Small diameter, which is 290mm, to give an Sd of 660cm². The paper/ fibreglass cone is supported by a die-cast aluminium basket and driven by a 75mmdiameter aluminium voice coil wound on a fibreglass former. In a design somewhat reminiscent of the high-excursion drivers used in car audio applications, the driver has not one, but two spiders to ensure the voice-coil stays centred in the magnetic gap, whose flux is generated by two Y35 ferrite magnets. The rather large ring-suspension is incredibly stiff (presumably partly because of the dual spiders) so although it would need a lot of power to get the cone moving, it's certainly going to stop in a hurry, so there'd be absolutely no unwanted overhang.

Given the cone's compliance, I wasn't surprised to find the internal amplifier (a 'Sledge STA-1000D') is rated by SVS as having a continuous power output of 1,000-watts. As you'd expect, it's a Class-D design and, it incorporates custom DSP circuitry to ensure frequency response linearity and protection against over-driving, thermal stress and d.c. The DSP also gives users unprecedented control over the subwoofer's operation, as you will soon discover...

The rear panel of the SB 13-Ultra has both balanced (via XLR) and unbalanced (via RCA) line-level inputs and outputs, which would seem to indicate that SVS means it to be very much a 'high-end' subwoofer. Whereas in most cases I'm a bit lukewarm when it comes to using balanced audio when connecting hi-fi components, I am an avowed fan when it comes to connecting subwoofers, because using a balanced connection means you can run very, *very* long cables to—and from—the SB 13-Ultra without worrying about noise being induced in the cables, because the balanced signal configuration rejects noise completely. 'To *and* from?' I can hear readers mutter, '*what do you mean from*?'. Yep, I mean both to and from because the SB 13-Ultra has a built-in high-pass filter, you can use it to filter the signal going to the amplifier powering your main speakers, which means the amplifier will effectively get a 'boost' in power, and your main speakers will no longer have to handle the very low frequencies. (You have other options for wiring the SB 13-Ultra, but given the DSP crossover options on offer, this is the hook-up method I'd personally recommend.)

However, the real fun comes with the curiously-named rotary (well, not only rotary-it also functions as a press-button) 'Feature Switch'. I say 'curiously-named because it's actually labelled 'Feature Switch' on the rear panel of the subwoofer, but called an 'Integrated Function Controller'-or 'IFC'in the Owners' Manual.) But irrespective of what you call it, the knob gives access to the digital signal processor menu so that you can adjust volume (in the digital domain), make adjustments to the high-pass filter (disable it completely or adjust the turnover frequency between 31Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, and 125Hz and low-pass slope between 12dB/octave and 24dB/octave); make adjustments to the Low pass filter (disable it completely or adjust frequency between 31Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, and 125Hz and low-pass slope between 12dB/octave and 24dB/octave); adjust absolute phase (0-180° in 15° increments), adjust the delay on the high-pass output (in milliseconds), apply compensation for room gain (disable/enable, frequency/slope), and adjust the 'tune' of the subwoofer (Sealed, 16Hz, 20Hz). You also get access to two parametric equalisers (PEQ1 and PEQ2) for each of which you can individually set frequency, level and 'Q'.

Phew! Maybe there are other subwoofers out there that offer an equally wide range of options and adjustments but if so, I've yet to hear of them.

The 'Room Gain' control is provided to compensate for the fact that small rooms tend to exaggerate lower bass frequencies so that a subwoofer will sound 'bassier' in a small room than in a larger room using the same control settings.

On the SB-13-Ultra, the compensation operates by allowing you to set different lowfrequency corner frequencies. SVS recommends 40Hz for small rooms, 31Hz for medium-sized rooms and 25Hz for large rooms, and for each setting you can also set one of two crossover slopes: 6dB/octave or 12dB/ octave. You can also disable the feature entirely if you wish.

The 'Subwoofer Tune' control was a new one on me, and I had to delve deeply into the Owner's Manual to discover that it allows you to adjust an inbuilt infra-sonic filter based on whether you've deliberately blocked one or more of the bass reflex ports on your SVS subwoofer. In the case of the SB 13-Ultra this was a moot point because the cabinet is totally sealed, so there isn't a bass reflex port, but I am baffled as to why you'd ever want to block off the ports of a bass reflex subwoofer. SVS's manual advises that 'This Function is active only in ported subwoofers and is inactive in sealed subwoofers... if this function is selected accidentally, double-click to skip the function and return to the top-level menu.' But, just in case you were wondering, if you do own one of SVS's bass reflex subwoofers, such as the PB 13-Ultra, if you don't block off the ports, you set the infrasonic filter to 20Hz; if you block one port you set it to 16Hz, and if

SVS SB 13-ULTRA SUBWOOFER

Brand: SVS Model: SB 13-Ultra Category: Powered Subwoofer RRP: \$2,599 Warranty: Five Years Distributor: Final Link Audio Pty Ltd Address: Level 1, 176 Swann Drive Derrimut VIC 3339 ☎ (03) 9746 0394 □ info@finallink.com.au □ www.finallink.com.au



LAB REPORT

Readers interested in a full technical appraisal of the performance of the SVS SB 13-Ultra Powered Subwoofer should continue on and read the LABORATORY REPORT published on page 56. Readers should note that the results mentioned in the report, tabulated in performance charts and/

> or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

Lab Report on page 56

ON TEST SVS SB 13-Ultra Subwoofer

you block all the ports, you set it to 'Sealed'. (Incidentally, SVS is onto a winner with its naming scheme. As you probably now realise, SVS's 'sealed box' subwoofers get the 'SB' prefix, while its ported models get the PB prefix. Smart move!)

Inveterate 'audio tweakers' will be in seventh heaven when they investigate the potential of the two parametric equalisers fitted to the SB 13-Ultra. For each filter you can select centre frequencies of 31Hz, 35Hz, 40Hz, 46Hz, 50Hz, 56Hz, 63Hz, 70Hz, 80Hz, 90Hz, 100Hz, 112Hz, or 125Hz. Then, after you've selected the frequency you want, you can then adjust the level of boost or cut you'd like to apply at that frequency from -12dB to +3dB in increments of 1dB. Then, after you've done that, you can adjust the 'Q' of the filter (the range of frequencies either side of the centre frequency that will be affected) using Q-values of 2.0, 2.4, 2.9, 3.6, 4.8, 5.7, 7.2, 9.6, or 14.4 (Q=2.0 affects the widest range of frequencies, while Q=14.1 affects the narrowest range).

Although I appreciate the flexibility all these adjustments give users, it does mean that there's an awful lot to get your head around-especially if you're not technical-due to the myriad permutations of the controls that are possible. Luckily, SVS's Owner's Manual is absolutely brilliant! It will tell you everything you need to know, in minute detail, with excellent diagrams and illustrations. Indeed I was absolutely amazed at how comprehensive and self-explanatory the Owners' Manual was until I remembered that since SVS sells only via mail order in the USA, owners would not have a handy near-by dealer to help them with set-up, so having an informative Owner's Manual would save SVS a lot of time on the phone or internet (the only means by which the company provides support in the US.) If you'd like to see the manual for yourself, you can do so here: http://www.svsound.com/support/documentlibrarv

If you're not technical (or just can't be bothered using the excellent instructions in the manual to fine-tune the subwoofer!) you'll be pleased to hear that SVS has set 'default' settings for every option that means you can basically just 'plug 'n play': The only control you'll have to set will be the volume control. However, if you aren't technical, I'd strongly suggest you get your friendly hi-fi dealer to install and tune the SVS 13-Ultra for you. So here in Australia, although you might not get SVS's 'Bill of Rights' charter, you will instead enjoy the many benefits of personal professional service!

IN USE AND OPERATION

Frankly, I wasn't quite certain how to approach setting the controls for the purpose



of this review. Should I assume I was an inexperienced owner and use the default settings, or should I assume an experienced retailer had installed the subwoofer and calibrated it to suit my room, my main speakers and my musical tastes? In the end, I decided to try both methods, but when playing the 'inexperienced' owner, I did make certain the subwoofer was positioned in the ideal spot in my listening room prior to starting, using the standard technique you'd use for installing any subwoofer. (That technique is too long to go into in this review, but you can read how to do it here: www.tinyurl.com/subwooferplacement)

Performance in the default mode was impressive! Perhaps a little too impressive... I suspect SVS has set the default a little 'hot' to make sure new customers are suitably impressed. Or maybe it was that I'd turned the volume a little too high at the outset... but whatever, I was certainly impressed by what I was hearing, because what I was hearing was bass that was very powerful and very extended, digging 'way down into the lowest musical octave. It was also exceedingly tuneful bass: it was delightfully accurate tonally and absolutely faithful to the character of the instruments being reproduced. It was also spot-on as regards frequency balance, with notes of different frequencies being reproduced at exactly the right level-not too loud, not too soft. The only thing that I wasn't entirely convinced by was the area where the subwoofer transitioned to my main speakers, which of course was the direct result of using the default setting. So it was here that I started tweaking (the Owner's Manual has full, complete and exhaustive instructions that cover absolutely everything you will have to do) to get that transition perfect!

But it was here that I discovered a few frustrations, because there are just so many adjustments available that I found it tricky to keep track of exactly what I'd done to what, and found that doing it all with just a single rotary/press-control was a bit confusing. For example I found that using the IFC, I kept accidentally leaving a menu without actually selecting the setting I wanted, or instead

accidentally selecting the wrong setting within one menu and being bounced back into the main menu before I could correct my mistake. Also, there are some tricky nonintuitive procedures (one such being that in order to disable the PEQ, you first have to set the gain to 0.0dB). However, all this confusion was obviously just me being slow on the uptake, because when my son stopped his music practise to come to investigate what all the swearing was about, he quickly set all the parameters to the values I wanted within a few minutes ... and without even having to refer to the Owner's Manual. He was intrigued enough by the process to then hang around for the listening sessions, and even to play some of his own music, which meant I got to hear what's usually inaudible in his earphones, and was thus able to experience the joys of Fat Freddie's Drop, Ugly Casanova, Kasabian and some others (and be gratified that a few, such as The Presets and Groove Armada, were on my own play list). The fidelity of his tracks was good too, the result of a demo I did for him years ago of MP3 vs. Lossless, which made him an instant lossless convert, despite the increased demand for disc space on his mobile devices. After listening for a while he gave his verdict on the SVS SB 13-Ultra, which was that it had 'wicked bass' and that the IFC adjustment system was totally 'rad'!

Left once again to my own devices, I replayed all the tracks I'd previously auditioned using the 'default' setting and was stunned by the improvements across the board to the sound, which I'd already thought was excellent out of the box. The transition to the main speakers was now perfect... I now could not hear where the SB 13-Ultra crossed to my main speakers, even when listening to material that straddled the frequency band. The perfected crossover setting also meant that my main left/right speakers were also sounding even better, as both the amplifier and the drivers were freed-up from the duties and demands of reproducing any low bass. As for describing the overall sound with this optimised set-up, well it was pretty much exactly what I wrote previously, but even better again!

CONCLUSION

My son had already made up his mind about the attributes and qualities of the SVS SB 13-Ultra, because as he left he asked whether I'd be replacing my existing sub with it. '*Why* do you ask?' I said. '*Because it's 'way better than* yours,' he answered, which kinda hurt, because mine cost me a lot more money than SVS is asking for the SB 13-Ultra, and it's a damn good sub... but I knew he was right. The SVS SB 13-Ultra is a top-shelf subwoofer at a bottom-shelf price. - - Greg borrowman



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LAB REPORT

SVS SB 13-Ultra Subwoofer

CONTINUED FROM PAGE 54

LABORATORY TEST RESULTS

Figure 1 shows the frequency response of the SVS SB 13-Ultra with the crossover set to bypass (black trace), at minimum (blue trace) and at maximum. The most extended response is in bypass mode, as you'd expect (because it bypasses the low pass filter), and extends from 26Hz to 422Hz ±3dB. However, this extension comes at the expense of some linearity, because the smoothest response was returned when the crossover was set at maximum (125Hz), which resulted in an overall frequency response of 24Hz to 160Hz ±3dB. On this trace, look particularly closely at the incredible smoothness of the response between

35Hz and 125Hz, where it's close to ±1dB. If you have large, floor-standing speakers that allow you to use the lowest setting of the crossover control (31Hz) you will get even more bass extension, with the response at this setting extending from 14Hz to 55Hz ±3dB. Although the most extended trace falls just a little short of SVS's specification of 20Hz to 460Hz ±3dB, the response measure by Newport Test Labs was obtained without the benefit of any DSP. Adding equalisation extended the ±3dB response to below 20Hz, as you can see best in Figure 4, where the top-most red trace in the set of frequency responses shows the extension and boost at 20Hz that results when the PEQ circuit is set at +3dB at 31Hz, Q=2. So with DSP optimised, Newport Test Labs measured the overall



response of the SVS SB 13-Ultra as 20Hz to 422Hz ±3dB, which is excellent. In practise, of course, you'd use the SB 13-Ultra's low-pass filter to deliberately restrict its high-frequency response, since you really don't want a large subwoofer driver operating at anything over 200Hz or preferably, even 150Hz.

Figure 2 shows all the responses that result from different settings of the crossover control, using a 6dB/octave crossover slope. Figure 3 shows the same settings, but instead using a 12dB/octave crossover slope. You can see that the enormous number of permutations means that you will be able to match the output of the SVS SB 13-Ultra to exactly transition to your main left/right speakers, no matter how large—or how small—they are. I don't think I have ever I don't think I've ever seen any other subwoofer that offers such a wide range of adjustment options

seen any other subwoofer that offers such a wide range of adjustment options.

The effect of the Room Gain control on the frequency response is shown in Figure 4 for a 6dB/octave setting and in Figure 5 for a 12dB/

octave setting, in both measurements for turnovers of 25Hz, 31Hz and 40Hz, along with the effect of adding a single PEQ control set for a 3dB boost at 31Hz with a Q of 2.0.

Figure 6 shows the effect of one PEQ control when set for a +3dB boost at a 31Hz centre frequency, but with Q set to 2.0 (red trace) and to 14.4 (black trace). You can see that with the control set to 14.4, you could use the PEQ's 'negative' dB settings to remove unwanted room resonances, or otherwise tailor the sound.



Figure 1: Pink noise frequency responses (smoothed to one-third octave) at 2.0 metres with crossover control set at Bypass (black trace) at minimum (31Hz and 12dB/octave, blue trace) and maximum (125Hz and 12dB/octave, red trace). [SVS SB13-Ultra Subwoofer]



Figure 4: Nearfield sine frequency responses showing effect of focom Gain control at its 648 setting for turnovers of 251/2 (pink trace); 311/2 (black trace) and 40Hz (green trace). The light blue trace shows the response without any controls in circuit. The top (red trace) shows the frequency response of bass driver when the FEQ circuit sengaged, with +3dB boost at 311/2, with Q set to 20 (Q = Q) (SVS 5813-3116 a Subwoder)



Figure 2: Nearfield sine frequency responses showing frequency response of bass driver for all settings of the crossover control (31Hz, 40Hz, 50Hz, 61Hz, 80Hz, 100Hz, 12SHz) using 64B/crotae slope plus Synays: (girsh thus trace), Red trace shows PEQ set for +3dB at 31Hz, Q=2.0. (See cop) (SVS 5813-Ultra Subwoofer)



Figure 5: Nearfield sine frequency responses showing effect of floom Gain control at its 12dB setting for tumovers of 25Hz (pink trace); 31Hz (black trace) and 40Hz (part trace). The light blue trace shows the response without any controls in circuit. The top (red trace) shows the frequency response of bass driver when the PEQ circuit is engaged, with +3dB boost 31 Hz, with Q set to 20(e22,0) (SVS 32H) 21Hz (sblacked); 31Hz (black and base).



Figure 3: Nearfield sine frequency responses showing frequency response of bass driver for all settings of the crossover control (31 Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz) using 12dB/octave slope plus Bypass (light blue trace). Red trace shows PEQ set for +3dB at 31Hz, Q=2.0. (See copy) [SV5 SB13-Ultra Subwoofer]



Fig@re 6: Nearfield sine frequency responses showing effect of PEQ control at +3dB with centre frequency at 31Hz and Q set to 2.0 (red trace) and Q set to 14.4 (black trace). The light blue trace shows the response without any controls in circuit. [SVS SB13-Ultra Sub]

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NAD

Compact Disc Player C 546BEE

NAD C 546BEE

CD PLAYER

AD hit on a winning formula for its product designs more than forty years ago. That formula has remained the same despite the company having changed hands several times in the intervening years (it's now owned by well-known Canadian manufacturer Lenbrook, which also owns PSB speakers and Bluesound).

Unlike Coca-Cola, NAD's winning formula isn't a secret. The company specialises in minimalist exterior designs, small-sized chassis, doesn't offer colour options and keeps models in its range for extended periods of time (the C 546BEE has been in NAD's model line since 2012). Although it has some products in its line that are most decidedly high-end, NAD mostly concentrates on the value-for-money sector of the hi-fi sector, with products such as this C 546BEE which, incidentally, won a prestigious Diapason D'Or award in 2013.

THE EQUIPMENT

The C 546BEE is very similar to the now-discontinued C 545BEE but one thing that is different is immediately obvious: the C 546BEE has a rotary control on its front panel. This control has multiple functions: turning it selects tracks, while pushing it plays and/ or pauses the music. I am mentioning it first because it was actually what I liked most about operating this player; it really works a treat. Another feature on the C 546BEE that was not on the C 545BEE is the USB input on the front panel that means you can play back directly from a USB stick (MP3 or WMA files) or from external storage.

C 546

I also really liked NAD's smooth and glossy CD-8 remote control, which is also really nice to use, and about which more later, but I'm almost absolutely certain (but not 100%) that this was the same remote that was supplied with the C 545BEE, and if so, it doesn't qualify as being 'new'.

Although you'll use the rotary control (or the remote control) for the most-used functions, you will also need to use some of the functions that on the C 546BEE are provided as pushbuttons below the front-panel display, these being (left to right) Stop/Eject, Source, Random, Display, Scan Backward and Scan Forward. Of these, the Source button is used to toggle between CD replay and the USB input.

NAD C 546BEE CD Player ON TEST



It also allows you to select between two different output filters, identified as 'Normal' and 'Slow', which actually correspond with a sharp (steep) roll-off filter and a slow roll-off filter.

The Display button is used to toggle between the various display modes, of which there are more than usual because the C 546BEE is capable of displaying CD-Text, where this information is included on the CD, as well as the usual 'elapsed time' and 'time remaining' displays for both tracks and the disc itself. When a CD does include text information, it will display song titles as they're playing, the name(s) of the artist and the title of the album being played... all of which looks really neat.

The remote control gives access to many more functions on the C 546BEE that aren't able to be accessed from the front panel. Chief amongst these is the ability to program the order of tracks to be played, up to a total of 40 tracks. There are additional options for Repeat Play (Disc/Track/Programmed Selection), A-B repeat, and Random Playback. I have to say that since I often complain about the standard of English in most Owners' Manuals, I am obliged to say that I was impressed by the English expression in NAD's manual, which is almost Shakespearian in nature, as evidenced by this excerpt: 'Repeat steps 2 and 3 to select and store other track numbers in memory, up to a maximum of 40 entries. When you reach P40, the three blinking digits will keep on flashing and won't stop. This is unlike the previous 39 entries wherein after an entry blinked thrice, it moves on to the next program number/entry.' One oddity I noted about the C 546BEE's operation is that whereas many retailers selling the NAD C 546BEE claim on their websites that it has delete programming, all using exactly the same wording: 'It is also possible to delete tracks without using the program function by simply using the delete key.' Try as I might, I could not find this capability mentioned in the on-line Owners' Manual, which is presumably up-to-date, nor could I get it to work on my review C 546BEE.

The remote also allows you to dim the front panel display, or turn it off completely, plus it also allows you to select between two different output filters, identified as 'Normal' and 'Slow', which actually correspond with a sharp (steep) roll-off filter and a slow roll-off filter. (Confusingly, in its Owners' Manual, NAD instead calls the 'Normal' filter a 'Sharp' filter, so the information in the manual doesn't match the display read-out.) The selectable filter is actually a standard fitting on the particular DAC used by Lenbrook, which it sources from Wolfson MicroElectronics (the WM8740 24-bit/192 multi-bit sigma-delta stereo device with on-board muting, de-emphasis and... selectable filtering). According to Wolfson, the frequency response of the 'Slow' filter is 3dB down at 23.568kHz, while the 'Normal' filter's response is 3dB down at 21.768kHz. Also inside the C546BEE, according to Lenbrook, are separate power regulators for the digital and analogue sections, metal film resistors and polypropylene capacitors in key areas, plus NAD uses high-quality OPA 2134 opamps in positions where other manufacturers would be more likely to use ordinary op-amps. Finally, there are no capacitors in the

signal path—well, there is just the one, but it's a high-quality single film type.

IN USE AND LISTENING SESSIONS

The NAD C 546BEE proved to be a delight to operate. The CD tray's operation is almost noiseless and very quick, taking around 1.5 seconds to open and, after you've dropped a disc in the tray, only 12 seconds to close, initialise and start play. Although, as I said, I loved the rotary play/pause control, it does require a delicate touch, because it's rather sensitive.

NAD C 546BEE CD PLAYER

Brand: NAD Model: C 546BEE Category: CD Player RRP: \$769 Warranty: Five Years Distributor: Qualifi Pty Ltd Address: 24 Lionel Road Mt Waverley VIC 3149 1800 242 426 (3) 8542 1111 info@qualifi.com.au www.qualifi.com.au



- Rotary transport
 control
- Front panel USB
- · Excellent remote
- Switchable filters
- Headphone output
- SPDIF input
- Rear-panel USB

LAB REPORT

Readers interested in a full technical appraisal of the performance of the NAD C 546BEE CD Player should continue on and read the LABORATORY RE-PORT published on page 62. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs

and/or photographs should be construed as applying only to the specific sample tested.

Lab Report on page 62

NAD C 546BEE CD Player



Listen too, to the delicate piano sound on Ballad for the Fallen, plus the shimmer of the cymbals that reveals the superb extension of the NAD's high frequencies

For example, if you're playing a track and wish to replay from the start of the track, you need to give the control a very gentle turn to the left. If you turn too fast, or too hard (or both!) you'll end up skipping to the beginning of the previous track (or the track before that). That said, the control is so easy to use that even if you do 'overshoot' in this fashion, it takes only a fraction of a second to skip forward to where you wanted to be in the first place.

One other 'failing' of the rotary control is that if you're trying to use it to skip multiple tracks (say, from track 5 to track 10 or *vice versa*) it's a bit slow to do this, and requires a fair few turns. In this case you'd be far better to use the numeric buttons on the remote which enable direct (and almost instant) track selection and switching. (I put the word 'failing' in inverted commas because, as I've already said, I really *liked* using this control. In normal day-to-day use, it's marvellous!)

The sound quality of the NAD C 546BEE was also a delight. Firing up the Audreys' album 'Til My Tears Roll Away', it impressed from the very first track (*My Darlin' Girl*) by reproducing the lovely voice of Taasha Coates to perfection, while the chiming electric guitar towards the conclusion is a joy to the ears. Not quite such a joy to the ears is the grungy distorted guitar sound that introduces *Baby, Are You There* but I'd be the first to admit that the NAD absolutely nails the sound. It also excels in the ability to cope with the grungy guitar, Taasha's voice and the gorgeous backing vocals of The Nymphs simultaneously. Indeed it delivered the whole soundscape of this cluttered track perfectly... and there's a hell of a lot going on in it.

The NAD also showed its ability to be delicate with *Keep Your Company*, again with fabulous delivery of vocals (both harmonised in real time and multi-tracked) and a super-accurate delivery of acoustic guitar. Listen too, to the delicate piano sound on *Ballad for the Fallen*, plus the shimmer of the cymbals that reveals the superb extension of the NAD's high frequencies.

To taste the purity of the NAD's delivery, I listened to Ben Gurston's 'Prelude to a

Scene' album, which was recorded by Greg Simmons live in Studio 301 using just a stereo pair plus some spot mics, at 352.8/24-bit, which made it the first album produced in Australia at audiophile DXD resolution. (You can read a full story about the production of this CD at www tinyurl.com/ben-gurton.) The naturally-recorded sound, as reproduced by the C 546BEE was, well, incredibly live... as if you're actually there in Studio 301 (and I've been there, so I do know). Most particularly impressive are the sound of the trombone, the piano, the tenor saxophone and the double-bass. The drum sound is certainly realistic, but for me so distant that it's somehow sonically divorced from the mix (and while I'm criticising, I could have done without the FX on At The End Of The Day. As for the music itself, all composed by Ben Gurton (who plays guitar, trombone and 'electronics' on the album), it has a flowing, relaxed, jazzy structure that I could listen to all day and the next... and forever after. Lusciously gorgeous! It's an album every audiophile should have in their library, but may be difficult to find. (So if you can't, go to www.bengurton.com which has links to retailers of the CD and to hi-res versions that are available for download.)

At The End Of The Day is also an ideal CD to play to work out which of the two available filter settings you prefer: 'Normal' or 'Slow'. For the record, I preferred the 'Slow' filter with every single CD I played, but that's with my albums and my ears. You might have a different opinion...

CONCLUSION



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Have a nice coffee			
Purchase with pride			
Get a full warranty with local return point			
After-sales service			
Have an ongoing relationship			
Relax and enjoy fine music			

THE CHAIN STORE

Talk to people with days or even weeks of hi-fi knowledge

Bit of a lottery on the advice front

Expect to be asked about your budget

Listen over a noisy shop floor if you can listen at all

There's a coffee shop three doors down in the Mall, mate

Purchase in ignorance

Be offered an extended warranty you probably don't need

After-sales what?

Rarely the same staff twice

 $(\cdot \cdot)$

Relax and enjoy your mass-market bargain

THE INTERNET

No peopleNo adviceNo filtering questionsNo filtering questionsNo listeningMake your ownPurchase with fearWarranty possibly void
in AustraliaAfter-sales what?No contact with staffPurchase and pray

UNHAPPY SCALE

•••

LOCAL HI-FI SHOPS.

HAPPY SCALE

The right place for the right sound.

CONTINUED FROM PAGE 60

LAB REPORT

LABORATORY TEST REPORT

The level of performance exhibited by the NAD C 546BEE in *Newport Test Labs'* series of tests was exemplary right across the board, starting with the frequency response, which was just 0.2dB down at 8Hz and 0.3dB down at 20kHz. More conventionally stated, the C 546BEE's frequency response was 20Hz to 20kHz ±0.15dB (also see Graph 11).

Separation between the left and right channels was equally good, with *Newport Test Labs* measuring it at more than 100dB at low and midrange frequencies and at 91dB at 20kHz. As such, the channel separation is superior to that of many stereo amplifiers, which is extraordinary. Inter-channel phase was excellent, just 0.01° at midrange frequencies and barely different at the frequency extremes (0.02° at 20Hz and 0.23° at 20kHz). Channel balance was magnificent, with the levels of the two channels matching to within 0.009dB.

I was pleased to see that NAD has actually implemented the de-emphasis circuit in the WM8740, and that its performance is excellent, with a 'worst' error of only 0.099dB at 16kHz. The fact that the C 546BEE has a deemphasis filter means that it will correctly replay old CDs from the 1980s, most of which were recorded with emphasis (which requires de-emphasis in order to sound 'right'). The player automatically applies this correction when required, so it wouldn't be applied to CDs made after 1990 or so. Despite most DAC manufacturers including de-emphasis circuitry in their chips, many CD player manufacturers don't activate these circuits. Why not? Frankly, I have no idea, but it probably cuts manufacturing costs so, as I said, it's nice that NAD has done the right thing.

Linearity error was low, with a 'worst-case' error of a mere 0.08dB at -80.70dB. Note that the result of 0.00dB at -90.31dB shown in the tabulated results is not a typographical error: the NAD C546BEE had absolutely no linearity error at all at -90.31dB... in other words, a perfect result.

Total harmonic distortion was very low, as you can see from the selection of spectrograms included with this review. (Although distortion—and more—is measured at other frequencies and levels, and I get to see them when writing this test report, there simply is not room to include all the graphs in the magazine.) Looking at Graph 1, which shows THD and noise at a recorded level of 0dB (i.e. maximum possible level), you can see that there are only seven harmonic distortion components intruding at levels higher than –128dB, which means they contribute less

Tektronijs: MS0 4104 Mixed Signal Deciliencepe UE NAD^{*} C546BEE CDP







NAD C 546BEE CD Player — Laboratory Test Results

Analogue Section	Result	Units/Comment
Output Voltage	2.1577 / 2.1601	volts (Left/Right)
Frequency Response	8Hz* – 20kHz**	(-0.2dB*) / (-0.3dB**)
Channel Separation	108 / 105 / 91	dB at 16Hz / 1kHz / 20kHz
THD+N	0.0049%	@ 1kHz @ OdBFS
Channel Balance	0.009dB	@ 1kHz @ 0dBFS
Channel Phase	0.02 / 0.01 / 0.23	degrees at 16Hz / 1kHz / 20kHz
Group Delay	+180.0 / -5.23	degrees (1-20kHz / 20-1kHz)
Signal-to-Noise Ratio (No Pre-emph)	85 / 100	dB (unweighted/weighted)
De-Emphasis Error	0.001 / 0.026 / 0.099	at 1kHz / 4kHz / 16kHz
Linearity Error @ -60.00dB / -70.00dB	0.01 / 0.07	dB (Test Signal Not Dithered)
Linearity Error @ -80.59dB / -85.24dB	0.03 / 0.02	dB (Test Signal Not Dithered)
Linearity Error @ -89.46dB / -91.24dB	0.01 / 0.05	dB (Test Signal Not Dithered)
Linearity Error @ -80.70dB / -90.31dB	0.08 / 0.00	dB (Test Signal Dithered)
Power Consumption	0.34 / 11.38	watts (Standby / On)
Mains Voltage During Testing	234 - 252 volts	(Minimum – Maximum)
Digital Section	Result	Units/Comment
Digital Carrier Amplitude	131mV	Audioband
Digital Carrier Amplitude	950mV / 980mV	Differential / Common Mode
Audioband Jitter	6.2 / 0.032	nS (p-p) / UI (p-p)
Data Jitter	7.2 / 0.041	nS (p-p) / UI (p-p)
Deviation	+232.4	ppm
Frame Rate	44100.248	
Eye-Narrowing (Zero Cross)	18.8 / 0.111	nS (p-p) / UI (p-p)
Eye-Narrowing (200mV)	33.2 / 0.185	nS (p-p) / UI (p-p)
Absolute Phase	Normal	Normal / Inverted
Bit Activity at Digital O/P	16	Where Fitted

than 0.000039% distortion each. But even the most prominent distortion component (the third harmonic, at 3kHz) is only at a level of –97dB, or 0.00145% THD. The next most prominent is the fifth harmonic, at around –105dB (0.00056% THD) while the second, fourth and seventh harmonic distortion components are all hovering at around -110dB down, or each 0.00031% THD. These levels of distortion would not be audible. At a recorded level of -10dB distortion drops even further, and these are the levels that are most likely to be recorded on a standard music CD. As you can see, the third harmonic is still the most prominent, at -108dB (0.00039% THD), with the second harmonic at -117dB (0.00014% THD) and almost no other harmonics visible, with those that are being more than 124dB down (0.00006% THD). Note also the noise floor, which varies with frequency but is mostly more than 120dB down and often more than 130dB down. Low-frequency noise, probably mains-related, is higher, however, as evidenced by the 'spike'



at the extreme left of the graph that just touches the –100dB point.

Distortion remained excellent at lower recorded levels, with the DAC not exhibiting any LSB errors until the levels of the test signals were more than 80dB down, as you can see in Graph 5. Adding dither to the test signal (Graph 6) quickly sorted this out, resulting in a far cleaner signal, albeit with a slightly elevated noise floor. However, since the noise floor is still always more than 110dB down (except at low frequencies) and mostly more than 120dB down, this really doesn't matter, as the NAD's noise level will be lower than that of most amplifiers. Measuring overall THD+N (that is, summing all the distortion components to get a total, and including noise into the measurement as well) returned a figure of 0.0049%, which is self-evidently excellent.

CCIF (intermodulation) distortion was also low, though there were more sidebands around the two test frequencies (19kHz and 20kHz) than I often see, and the sidebands were higher in level, with the 18kHz and 21kHz components at around -77dB (0.01412%) and the 17kHz and 22kHz components at around -95dB (0.00177%).

I can only conclude my report by repeating what I said previously, that the performance of the NAD C 546BEE was outstanding across all measurements

However the unwanted regenerated 1 kHz signal is extremely low, only just visible above the noise floor at -117 dB, where it would be completely inaudible.

The signal-to-noise (S/N) ratio of the NAD C 546BEE was measured by *Newport Test Labs* as being 85dB unweighted and 100dB A-weighted, a difference sufficiently large as to suggest the presence of either very low or very high-frequency noise (or both). Since the low-frequency noise levels can be seen on the spectrograms, and are around 100dB down, I'd suspect high-frequency noise, above 50kHz, as being the culprit, but at such high frequencies it would be inaudible, as evidenced by the result with an A-weighting filter. The effect of the 'Slow'/'Normal' filter on the NAD C 546BEE's output is best-shown by the oscillograms showing performance with a 1kHz square wave and an impulse.

You can see that in the 'Normal' position, both the square wave and the impulse response show the typical time-reversed ringing of a standard over-sampling filter, plus quite a lot of high-level ringing. When the filter is set to 'slow', the time-reversal is still evident, but there is almost no ringing at all... the signals almost appear to be that of a standard 'analogue' square wave and a standard 'analogue' impulse.

I am not entirely certain this difference would be audible, or, if it was, whether one would sound 'better', but since Australian Hi-Fi's editor not only heard a difference, but preferred the 'slow' filter, I guess it must be. Power consumption in standby was very low, at less than half a watt, but even when it's operating the C 546BEE only pulls around 11.38-watts from the mains.

I can only conclude my report by repeating what I said previously, that the performance of the NAD C 546BEE was outstanding across all measurements.

Steve Holding

ni-fi 📥

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OBITUARY: David Graebener





avid Graebener, one of the pioneers in the field of planar magnetic loudspeakers, died on January 3rd, 2015 after a two-year battle with Metastatic Melanoma. Graebener's first foray into planar magnetics was when he and James Croft developed the transducers used in the original Carver Amazing speaker. He later formed Bohlender-Graebener Corp. (now BG Radia) with Tom Bohlender, along with some help from Doug Clifford, the drummer from Creedence Clearwater Revival. He was also executive vice president of Wisdom Audio and the owner of Advanced Transducer Engineering. He and James Croft also co-founded Solution Matrix, which developed TV loudspeaker systems for Harman/JBL and Philips, truck cabin noise-cancellation systems for Paccar, and a line of loudspeakers for Rockford-Fosgate. Acting as a consultant, Graebener completed design work for Boeing, American Technology Corp., NCT, Pacific Car and Foundry, Carver, Toshiba, Onkyo, and Eastern Asia Technology Co. Graebener authored numerous patents-granted and pendingrelated to planar-magnetic transducer design and was associated with the development of more than 130 electro-acoustic designs. He also won many awards from both CEDIA and CES for his designs.

David John Graebener was one of three children born to Virginia and Roy Graebener on July 19th, 1948 at the cottage of his grandparents (Buck and Jo Bucklin) at Mabana Beach, Camano Island. He is survived by his parents Virginia and Roy Graebener of Mount Vernon, WA, his wife of 37 years, Carolyn Graebener, his



children; Steven Hutchings and Jamee Nunnelee; sister Karla and husband Steve Hopkins, their children Meghan Mataya and Alicia Hopkins; Half brother, John Lees and half sister Toni Phillips and many cousins, nieces and nephews. He was preceded in death by his sister, Catherine Jo Kline in 2010.

Graebener learned about electronics whilst working on submarines in the US Navy. On his return to the Pacific Northwest he met Paul and Jim Kline along with Pat Snyder. The four of them formed Speakerlab; one of the first employee-owned, mail-order speaker kit companies, which became renowned for its model Speakerlab 7 as well as for its outrageous advertisements. According to his wife, Carolyn, Graebener had a modest demeanour, an eccentric personality and was humble to a fault. She said: 'Everyone that met David fell in love with him. He was a man of few words that meant so much, to so many. If you knew David, and you spent time in any of his cars, or media rooms listening to Miles Davis or Eva Cassidy really loud and really clear; David's eyes would close, and he'd lay his head back and absorb every note, every string, every drum, and every sound. Sometimes you'd see tears while he listened. His speakers greg borrowman (Photos: Carolyn Graebener)

ON TEST

Sennheiser Urbanite XL

HEADPHONES

ight out of the box I loved the look and the build of Sennheiser's Urbanite XLs, with their strong stainlesssteel hinges and aluminium sliders, their comfy velour earpads, and their colours of olive, black, 'denim', 'sand' and one whose colour is called 'Nation' but turned out to be a curious blend of black, red and blue. I initially imagined these might be colours representing the East Frisian flag, were Sennheiser's Wedemark German headquarters not rather to the South-East of this. Despite further enquiries, it remains a mystery. The Urbanite XL is available in two versions-one designed for use with iOS devices, and the other for use with Android devices-and the colour choices are different for each. Given this bi-partisan approach, it was a surprise that white is not one of the optionally available colours for iOS devices... iPod, iPhone et al. However, it wasn't surprising that the

colour choice is widest for iDevices. Android (and other phone flavour) owners are only given the choice between olive and black.

I wasn't so sure that I loved the name of these headphones. Does Sennheiser equate 'Urban' with 'Street' and is therefore pitching these Urbanites against the now Apple-owned Beats? It certainly leads its marketing with a promise of 'massive bass'... although it then immediately follows up with 'without compromised quality'. So don't write them off just because you're not a Beats fan. They're far better than that... as you will find.

THE EQUIPMENT

The cable on the Urbanite XL model is flat and quiet, with an inline microphone and controls that are slightly tricky to come to terms with at first, being black-on-black and not quite obvious-enough in tactile terms. Also missing out in the area of tactile was

that unlike every other pair of Sennheiser headphones I have had the pleasure to hear, there were no trademark 'bumps' so you can easily identify the left earpiece by touch alone... at least that was what I initially thought (and in fact wrote in a review for another publication) but it turned out that I was looking for the guiding bumps in the wrong place. Instead of being on the outside of the headband, the three 'bumps' that identify the left earpiece are on the Urbanite XL positioned on the inside of the headband. The issue with positioning them here is that they're very difficult to find when you're actually wearing the 'phones, because it's almost impossible to bend your arms in such a way that your fingers can reach inside the band, and even if you do manage to do this, you only need to get a few strands of hair in the way before it's nigh-on impossible to feel the bumps at all through the strands of hair.

SENNHEISER

ON TEST

So yes, the Urbanite XL *does* have identifying channel ID bumps, but let's get them back on the outside of the headband please!

So far as specifications are concerned, the most important of them, which is the nominal impedance-at least so far as headphones are concerned-shows that that of the Urbanites is a very travel-friendly 18Ω . Sennheiser rates their frequency response as '16Hz to 22,000Hz' but since no dB envelope is stated, it's really a frequency 'range', rather than a response as such. The headphones are stated as being capable of delivering a sound pressure level at your eardrums of 110dB at 1kHz with an input signal of only one volt, which is more than sufficient to drown out even the sound of jet engines at take-off (not that I'd recommend you use them to do this!) and when listening at levels sensibly south of 100dBSPL, overall distortion levels are claimed to be less than 0.5%... that is, almost inaudibly low.

Strangely, what is not mentioned at all in the specifications is the weight of the Urbanite XLs, presumably because at a touch over 290-grams according to our office postage scales, they've obviously never heard of the Paleo diet. The funny thing is that despite them being on the porky side, I never once thought they felt heavy when I was wearing them, which I put down to them being so comfortable—and so good-sounding—that I never noticed.

LISTENING SESSIONS

And since we've come to the sound, I enjoyed the Urbanite XLs very much. The sound is certainly more open and integrated than that of their sister Sennheiser Momentum's sound. Playing Barenaked Ladies' 'When You Dream' and moving between Momentum and Urbanite XL, the new headphone was able to find more detail and clarity in each of the two soundfields at the start, it more clearly separated the third bass note in the repeated phrase from a kick drum behind it, and when the vocal arrived it was very much floating centrally in a threedimensional soundfield, whereas the Momentum presented it flat on an arc of stereo separation—wide but flat, less front to back, less space.

As for that snide remark I made about Beats and bass earlier on in this review, well Sennheiser's Urbanites have bass emphasis for sure, not so much heading down deep, but with a strong upper bass which, playing in quiet environments, can get a bit imposing. It rises up around the midrange like reverb in a village hall, not soft or slow, just emphasised. On a bus or train this is more of a merit, compensating for the flooding of lower frequencies by the rumble of the world around you. For some bass-rich material I found it too much even then-the bass on the opening track of Belle & Sebastien's new album positively resonated through these headphones, limiting the level at which I found replay to be comfortable. But for most material the bass is just enjoyably strong, and the merging from this to the midrange and vocals is excellent. Vocals are delightfully delivered-forward and precise for pop, and real and three-dimensional for natural recordings.

If you're interested in alternatives, there's also an on-ear non-XL Urbanite if you prefer smaller headphones, but I have yet to experience these, so I can't report on them here, and there's also a wireless version of the Urbanite XL available that supports NFC pairing and receives audio via Bluetooth aptX or SBC codecs. The headphone tech reportedly remains the same, so it would come down to the quality of the Bluetooth transmission and the amplification. The additional circuitry and the need for a battery would also mean a weight gain for the Urbanite XL Wireless.



CONCLUSION

SENNHEISER URBANITE XL HEADPHONES

Brand: Sennheiser Model: Urbanite XL Category: Headphones RRP: \$399.95 Warranty: Two Years Distributor: Sennheiser Australia Address: Unit 3, 31 Gibbes Street Chatswood NSW 2067 **1800 648 628 (02) 9910 6700** 🗕 en-au.sennheiser.com Superbly comfortable Glorious sound Detachable cables Foldable Weight Bass emphasis Button ID

Magnetic Cellulose Speakers

They're flat, ultra-thin and, according to their inventors, they sound great. They're also the world's first magnetic cellulose loudspeakers — and they don't require a drive magnet...



hroughout the ages, Swedes have relied on their country's vast forests as a source of sustenance and economic growth. Now add the world's first magnetic cellulose membrane loudspeakers to the list of products that can be produced from wood.

These flat, sonorous and environmentallyfriendly loudspeakers are made with a new material derived from wood pulp—magnetic cellulose gel—which was developed at Stockholm's KTH Royal Institute of Technology. Unlike ordinary speakers, they don't require a heavy permanent magnet and the voice coil is not attached to the cone.

Richard Olsson, Assistant Professor (PhD), Fibre and Polymer Technology, Polymeric Materials, School of Chemical Science and Engineering at KTH, who supervised the doctoral research behind the magnetic cellulose gel, says the new material may open the way for innovations in many different areas, not only restricted to acoustic applications in home hifi loudspeakers and for automobile speakers.

Olsson and his colleagues at KTH, Lars Berglund, also a researcher in chemical sciences, and Valter Ström, a scientist in engineering physics of materials, have demonstrated their speakers, and a paper about them has been published by the Royal Society of Chemistry. *'This, to our knowledge, is the first reported magnetic speaker membrane,'* Olsson says. He claims that the sound quality of a magnetic cellulose

Magnetic Cellulose Speakers











design: 'is at least as good as a conventional loudspeaker driver—and possibly even better because of the even distribution of force across the entire radiating area of the membrane.'

The idea is to show the potential of natural and environmentally-sustainable materials in everyday products. 'We want to use this first prototype to see how the cellulose can be used in new applications,' says Olsson. He and his research colleagues have patented the material, which was created by attaching magnetic nanoparticles to cellulose nanofibrils. The cellulose comes from renewable wood pulp and involves environmentally-friendly water chemistry. The gel is cast into a membrane which is then allowed to dry. The membrane's strength is that it has a rapid reaction capability, which means a high degree of precision in sound reproduction.

Ordinary moving-coil loudspeakers require the use of a large permanent magnet. The speaker cone's movement, which creates the sound waves, is driven by a voice coil on a former that sits inside the permanent magnet and is attached to the cone.

With the cellulose membrane speakers developed by KTH, the magnetic particles are part of the membrane itself. The KTH speaker has a coil, but it has no direct contact with the cone, so the only part of the cellulose membrane speaker that moves is the cone itself. This new design approach is not only revo-

lutionary, it also means that cellulose membrane speakers can be made very small, so the technology can be scaled up for large-cone woofers, or scaled down to make tweeters.

But the technology potentially has other uses, according to Olsson. 'We want to look at applications for the material that are driven by magnetic fields. It may, for example, be a way of actively damping cars and trains, or used for audio noise-cancelling applications.'

[Material research conducted at Wallenberg Wood Science Centre (WWSC). The doctoral students in the KTH project are Sylvain Gallan, Richard Andersson and Michaela Salajkova. All photographs copyright Richard Andersson.]















70 | Australian hi fi

Joseph Tawadros | Permission to Evaporate | ABC 481 0917

The wonder of Joseph Tawadros's 11th album is that he has created not just new pictures, but new colours with which to paint them. On *Bluegrass Nikriz* and *Dreaming Hermit*, for instance, his oud's usual brooding mellowness is supplanted by a banjo-like twang. His compositional range also continues to expand, without experimentation negating beauty. The prayer-like title track and *Last Candle* immediately swell the canon of Tawadros's finest

works. Again he recorded in New York, this time taking pianist Matt McMahon with him as well as his percussionist brother, James. The guests are bassist Christian McBride and electric guitarist Mike Stern, whose long, crying notes are sometimes so ephemeral as to seem to be dreamed rather than played. All five musicians' artistry is luminous, and the recording quality exemplary.

Paul Grabowsky Sextet | The Bitter Suite | ABC 377 1278

Just as the album's title is both dark and punning, so the music is in a constant flux of what, were it writing, we would call 'tone'. Paul Grabowsky can create a pastiche of an idiom out of which a deep truth will grow in the improvising, while a more solemn-sounding piece spawns sly asides and dramatic jolts from the players, or perhaps contains an unexpectedly curdled harmony. The pianist has assembled Jamie Oehlers (tenor), Andrew Robson (alto and soprano), James Greening (trombone), Cameron Undy (bass) and Simon Barker (drums): all highly distinctive players, so he can provide outlines knowing abundant colour shall be added, or be very specific, knowing the collective humanity will outweigh the complexity. All these players are natural risk-takers, so the solos come flaring off the surface of the compositions.

The Monash Art Ensemble/George Lewis | Hexis | Jazzhead HEAD199

Philosopher, composer, improviser, conceptualist, computer-music pioneer and trombonist George Lewis has a mind as expansive as an ocean. He was an astute choice for Paul Grabowsky to bring out to work with the student-based Monash Art Ensemble (augmented by members of the Australian Art Orchestra) in realising Lewis's groundbreaking and wildly imaginative compositions. The 16 players can generate massive blocks of granite sound, but more often Lewis extracts an extraordinary transparency, so that a maze of small—often contrasting or conflicting sounds may be heard simultaneously. This is the cutting edge of jazz and new music colliding and comprehensively obscuring where notation stops and improvisation starts. Lewis's trombone and Grabowsky's piano share a foreground that keeps shattering before your ears.

Java Quartet | Together | Dharma/Vitamin DHR007

No instrument echoes the male voice as closely as the tenor saxophone, which lends it a peculiar immediacy especially when played with the blowtorch urgency that Matthew Ottignon likes to apply. Ottignon has been part of Java Quartet for a nudge over half of the band's 20-year life, gouging stark rents in the pastel-hued surface of the more introspective music that leader/composer/bassist Michael Galeazzi, pianist Greg Coffin and drummer Mike Quigley instinctively make together. This is not a value judgement. Productive artistic collaborations are often forged by combining ostensibly oppositional forces rather than by aligning perfectly compatible aesthetic sensibilities. Several of Galeazzi's new compositions are among his best, playing to the band's strength of creating journey-like narratives. Broadening the sonic scope on some tracks are tabla player Bobby Singh and rapper Morganics.

Tiny Hearts | Aluvium | www.alluviumrecords.com/Birdland

Among the wonders of collective music making is the way a composition conceived by one person is interpreted, filtered and transformed by the assembled pool of sounds, experiences, muscles, emotions, imagination, expertise and aesthetic sense. It happens in rock bands and orchestras, but the process is magnified when improvisation is extensively involved. All five members of Tiny Hearts have contributed pieces to this debut album, yet what hits home is not so much the diversity of compositional approaches as the cohesion of group interplay in realising them. Aiding the cause is the distinctiveness of Earnon Dilworth's trumpet which, unlike most jazzoriented players, sometimes carries a blast of the raucous vibrancy associated with Balkan Gypsies or Spanish bullfight bands. Other members are saxophonist Dave Jackson, pianist Steve Barry, bassist Tom Botting and drummer Paul Derricott.

Melissa Oliveira | In My Garden | www.melissaoliveira.com

Singer Melissa Oliveira was born in Australia, and lived in Portugal and the Netherlands before Boston, where she recorded this album with mainly American musicians. Out of all that emerges Brazilian-flavoured jazz, with her voice floating or riding more forcefully atop buoyant rhythmical updrafts. She has had a hand in penning most of the material, as well as setting convincing lyrics to standards by Wayne Shorter and Clifford Brown. She evades the mannered improvising that afflicts so many singers, and there is more substance than mere prettiness at work. The players are expert at making the music breezy and open (a quality further aided by the fact pianist Alexei Tsiganov also plays vibraphone), and none other than Greg Osby is guest saxophonist on two tracks. Fans of Flora Purim should have a listen.

John Shand [www.johnshand.com.au]

BLU-RAY REVIEWS – Guitarists and pianists on film...



Jimi: All Is By My Side 2013

Director: John Ridley Starring: André Benjamin, Hayley Atwell, Imogen Poots, Ruth Negga, Andrew

Buckley, Burn Gorman, Tom Dunlea, and Noel Redding

t must be hard making a movie about a rock star's early years when you're denied the ability to use his music. I applaud writer/director John Ridley's integrity in refusing to allow Jimi Hendrix's estate's insistence on 'full participation in the film's production' (says the Internet Movie Database). Hagiographies generally don't make for riveting viewing.

That said, it seems clear that Ridley himself took quite a few liberties with the Hendrix story. As always, rely on dramatic interpretations of the lives of real people not at all, and give due emphasis to the word 'based' in the opening disclaimer: 'This movie is based on a true story.'

We start in 1966 with the 23-year-old Hendrix as the guitarist in the group Curtis Knight and the Squires, playing a near-empty club in New York. The small solos he is permitted are noticed by Linda Keith, then girlfriend of Keith Richards of The Rolling Stones. She takes an extremely passive Hendrix—played convincingly by the then 36-yearold André Benjamin, while his guitar work is performed by the then 65-year-old Waddy Wachtel—and forms an ambiguous relationship with him as she tries to interest someone, anyone, in managing him.

We follow him, sort of, as he is taken up by Chas Chandler, ex-Animals bass player who now wants to become a band manager, brought to London and gradually becomes known, largely through Chandler's contacts and financing, up until the point where he and his band are departing London for the Monterey Pop Festival of 1967, which cemented his stardom.

There's controversy over the portrayal of his relationships. If a woman called 'Ida' actually exists, she was either murderously manipulative or she should sue. The movie has it that Hendrix's first album was a flop and there was little traction for his singles, when in fact they were quite successful.

The story is delivered as a series of loosely connected scenes, sometimes leaving me a little bemused. Sometimes 1960s London is presented in a seemingly convincing way. The modal score for the movie on IMDB is 6/10, with a relatively high 8.5 per cent giving it just 1/10 (and 9.7 per cent going for 10/10).

The photography was variable, especially in the early New York section where an in-and-out of focus aesthetic was deliberately, I assume, employed. The sound is presented in 24 bit stereo or DTS-HD Master Audio 5.1. The latter only gives lip service to surround, with little more than some bleed into the surround space.

Some have criticised Wachtel's playing as somehow being less than Hendrix's, but to my ear it was convincing.

FEATURES

Running time: 118 minutes Picture: 2.35:1, 1080p24, MPEG4 AVC @ 28.69Mbps Sound: English: DTS-HD Master Audio 24/48 3/2.1 @ 3320kbps (core: DTS 24/48 3/2.1 @ 1509kbps); English: LPCM 24/48 2/0.0 @ 2304kbps Subtitles: Nil Extras: Nil

Restrictions: Rated M, Locked to Region 4

Movie: B– | Picture: B | Sound: B | Extras: D

The Piano 1993



Director: Jane Campion

Starring: Holly Hunter, Harvey Keitel, Sam Neill, Anna Paquin, Kerry Walker, Geneviève Lemon, Tungia Baker and Te Whatanui Skipwith

Way, way back in 1993 New Zealand director Jane Campion made what's truly a work of art. The Piano is, of course, not so much about a piano as about the pianist. It turns out that Holly Hunter, born in Georgia USA, is a fine pianist, so this is a rare movie in which the piano playing needed not be faked. Hunter played all the works throughout. Yet despite the focus on the piano and the pianist, and the many works played, the soundtrack lists just four tracks (beyond those sung by the young Anna Paquin).

I've come very late—over two decades late—to this acclaimed film. It scored three Oscars—for script and acting by Hunter and the ten-yearold Paquin). Icon Film Distribution released it last year on Blu-ray, digitally remastered.

Hunter is a Scottish single mother in the middle of the 19th Century. Paquin is her daughter. Somehow she gets married off to Sam Neill, a landowner in New Zealand. The pair are deposited on a beach, along with her piano—the one thing besides her daughter which seems to give her life. Neill and a collection of Maori porters eventually arrive to take her and her belongings home, but must by force of logistics leave the piano on the beach.

Harvey Keitel, also speaking a kind of Scottish that occasionally fails him, is smitten with Hunter. He purchases the beach-bound piano from Neill (husbands, then, controlled all) and with Hunter giving piano 'lessons', a triangle of a certain type ensues.

The movie is rated 'M', but it should be noted that there are some sex scenes and full frontal male nudity. It was banned in Malaysia, but then lots of movies are banned in Malaysia.

As I was watching I was thinking: what digital remastering? Scenes seemed dark, with a bluish hue and rather soft. Then there'd be a cut to an interior with one of Sam Neill's relatives wearing a crocheted bonnet, and the picture would pop to life with sharpness and detail and fine contrast and colour. Then there'd be another low contrast scene.

The photography is striking, more so I imagine had the scenes not been flattened by softness and reduced contrast. Seeing as how cinematography scored an Oscar nomination (although not a win), I assume that the film has degraded over the years.

The film doesn't really take full advantage of surround sound. It did use Dolby, just not the discrete versions. Nonetheless the dialogue is clear and the bush sounds are surprisingly encompassing. The piano sounds consistently smooth, even after it has has been transported around the world by sailing ship and deposited on a beach. Later a tuner is brought in, to our pianist's surprise and delight, even though the piano had seemingly survived its ordeal unscathed. **Aven Stephen Dawson** [www.hifi-writer.com]

FEATURES

Running time: 120 minutes

Picture: 1.85:1, 1080p24*, MPEG4 AVC @ 19.99Mbps

Sound: English: DTS-HD Master Audio 16/48 @ 1674kbps; (core: DTS 24/48 3/2.1 @ 1509kbps); Commentary: Dolby Digital 2/0.0 @ 256bps Subtitles: English

Features: Featurette (720p24 - 16 mins) Restrictions: Rated M, Region Free

Restrictions: Rated IVI, Region Fre

Movie: A | Picture: B | Sound: A | Extras: B

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CONTINUED FROM PAGE 22

LABORATORY TEST REPORT

The frequency response of the Opera Mezza 2012s, as measured by Newport Test Labs, is shown in Graph 1. This graph is a composite graph where the low-frequency portion of the trace was derived from the in-room response of the Mezza 2012s obtained using pink noise test signals, and this has been spliced (at 2kHz) to the high-frequency response, as derived using a gated sine response that simulates the response that would be obtained in an anechoic chamber. The result is a trace that extends from 70Hz up to 20kHz ±3dB, which is an excellent result for such a small speaker, but in fact the high-frequency response extends above 20kHz within the ±3dB window, as shown in Graph 2, where you can see that it continues up to around 27kHz. Importantly, the trace is particularly linear from around and the port faces backwards, this is unlikely to have any significant effect on the sound.

Although Opera specifies the minimum impedance of the Mezza 2012 design at 4Ω , the impedance of the sample tested by Newport Test Labs dropped below 4Ω below 14Hz, around 42Hz and between 150Hz and 310Hz. At 225Hz the impedance was around 3.6Ω . All of which simply means that the Mezza Opera 2012 is categorically a 4Ω design, according to IEC 268-5 (16.1)-which is exactly what Opera specifies as its 'nominal' impedance. But although the impedance is fairly low at low frequencies (it stays below 8Ω right up to 2kHz, except at the two resonant peaks), the impedance is relatively high above 1kHz, staying above 8Ω out to 40kHz. All of which means you will have to pay more than the usual amount of

The Mezza 2012 measured very well in all Newport Test Labs' tests. The midrange region is particularly flat...

130Hz up to 12kHz, where it's within about ± 1.25 dB of reference.

Graph 2 shows that the Mezza 2012's speaker grille introduces a few anomalies, with a 6dB dip at 4.5kHz, a 5dB peak at 6.5kHz and a 3dB dip at 9kHz being the most significant. All are shown on the red trace. The black trace shows the Mezza 2012's response without the grille. Although the dips are significant, so I'd suggest removing the grilles for serious listening sessions, they're not so serious that I would not also consider it fine to leave the grilles on when you're only listening to music as background to some other activity.

The low frequency response of the Mezza 2012 is shown in Graph 3, this time captured using a near-field technique that simulates the response that would be obtained in an anechoic chamber. You can see that the output of the small bass/ midrange driver starts rolling off fairly early, at around 150Hz to its minima at 42Hz. Interestingly, whereas most designers would tune the enclosure so the output of the bass reflex port would peak at this same frequency, Opera's designers have put the peak port output somewhat lower, at 38Hz, presumably to try to extract some deeper bass, in the process trading off some of the reinforcement one would usually expect at around 60-70Hz. There is some unwanted high-frequency output from the port up around 550Hz and 1.3kHz, but since it's at low levels,

care when matching the Mezzo 2012 to an amplifier, because it will need to be able to deliver voltage *and* current. Left/right speaker matching was outstandingly good, indicated by the way the traces for the left and right channel are almost identical. The small divergences around 1–3kHz would seem to suggest slight differences between the left and right crossover networks, rather than differences between the drivers. The phase angle (blue) trace was exceptionally well-controlled, diverging barely more than 30 degrees.

Newport Test Labs measured the sensitivity of the Opera Mezzo 2012 design at 86.2dBSPL at one metre (for a 2.83Veq input), using its usual test methodology, which is an excellent result for such a small loudspeaker (though somewhat shy of Opera's specification of 88dBSPL). Frankly, I would have expected a result more around 84–85dBSPL, so by coming in 1–2dB higher, the Mezzo 2012 is ahead of the game so far as I'm concerned.

The Opera Mezza 2012 measured very well in all *Newport Test Labs'* tests. The midrange region is particularly flat and well-balanced and the high frequencies more than adequately extended. The lower bass is rolled off, as one would expect from such a small driver in such a small enclosure, but it does so smoothly, and one might expect a little extra in the lowest octave as a result of the unusual tuning of the bass reflex port. Overall, an excellent result. - Steve Holding



a Graph 1. Frequency response. Trace below 2kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus with capture unsmoothed. This has been manually spliced (at 2kHz) to the gated high-frequency response, an expanded view of which is shown in Graph 2.(Opera Mezza 2012 Loudspeaker)



Graph 2. High-frequency response, expanded view, with grille on (black trace) vs grille off (red trace). Test stimulus gated sine. Microphone placed at three metres on-axis with domi tweeter. Lower measurement limit 500Hz. [Opera Mezza 2012 Loudspeaker]



Graph 3. Low frequency response of front-firing bass reflex port (red trace) and bass/midrange driver. Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas. [Opera Mezza 2012 Loudspeaker]



Graph 4. Impedance modulus of left (red trace) and right (yellow trace) speakers plus phase (blue trace). Black trace under is reference 4 ohm precision calibration resistor [Opera Mezza 2012 Loudspeaker]



Graph 5. Composite response plot. Red trace is output of bass reflex port. Green trace i anechoic response of bass/midrange driver. Pink trace is gated (simulated anechoic) response above 400Hz. Black trace is averaged in-room pink noise resp. [Mezza 2012]



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