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# SOUND IMAGE

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## HOME CINEMA SECRETS!

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INSIDE

Basement  
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Home  
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FUTURE

**ISSUE 340**  
JULY-AUG 2021  
**A\$9.99**  
NZ\$11.99



**REVIEWED**

### THE 10TH COMING OF YAMAHA AVENTAGE

Next-gen AV receiver: our verdict



**GROUP TEST**

### WHY WIRELESS SPEAKERS WILL KILL YOUR SOUNDBAR!

Simple systems with sensational sound

# A NEW LANGUAGE FOR HOME CINEMA



E L  M E N T I



The Elementi Fire range incorporates compression drivers for dynamic and detailed cinema sound, but without harshness, thanks to FIR filters which tune not just frequency but phase. The result is a speaker that sounds powerful, clean, warm and effortless.

**Models:** Firefly, Phoenix, Fire-Dragon



The Air range uses pleated diaphragm ribbon tweeters for a uniquely open soundstage, where the image floats in front of you. Experience the finesse of a pleated diaphragm tweeter, with power to match compression driver systems.

**Models:** Zephyr, Sirocco, Tempest

The Fire range, its amplifiers and associated Earth subwoofers will be available from Cogworks: [www.cogworks.io](http://www.cogworks.io).



## Elementi is more than a new brand: it's a new approach.

Meet the Elementi Fire, Air and Water ranges of digital active speakers, and the Elementi Earth range of digital active subwoofers. Designed to precisely satisfy the demands of modern home cinema design, they also bring the power amplifiers

out of the rack and into the cinema, in slimline modular units which can mount on the wall or behind the screen. This doubly overcomes issues of long runs of speaker cables, and of excessive heat build-up in overstocked equipment racks.



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**Models:** Basalt, Onyx, Obsidian, Kola



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**Models:** Maelstrom & Tsunami

For more information on the full Elementi range, visit [elementiaudio.com.au](https://elementiaudio.com.au)



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The World's First Speaker with MAT



Every note. Every word.  
Every detail.



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# Metaconversations

Asking questions is part of our job. And it's harder via webcam.

**Z**oom briefings instead of press launches have been a great success during the past year. Epson recently broke the drought with a proper PR bash to announce its partnership with National Geographic to save the permafrost, and perhaps the world, which on Epson's side involves ridding it of laser printers. They hosted a launch and a lunch overlooking a sunny Sydney Harbour, and rejoining a physical group was most enjoyable, a reminder that however casual a Zoom chat may try to be, there simply isn't the natter-level conversation either with the company or from journos on different beats covering technologies that may you may have missed. It's so good to share. It's also easier, in the flesh, after some chit-chat, to ask a serious technical question in a friendly manner.

On Zoom, raising your virtual hand with a serious question tends to look more like you're causing trouble. Not that it stops me; when there's something I don't understand, I ask. It's how I learn. Recently I was on a Zoom call about a soundbar which was enthusiastically presented as having six drivers, 3D sound, Dolby Atmos and DTS:X, all very exciting. I fear may have rather brought things down by putting up my hand and asking for confirmation that this was really just a stereo bar playing in 2.0, yes? It seemed the only possible configuration given the driver arrangement. And yes it was indeed 2.0, though "with Atmos", they said, and hey it sounded really great. And maybe it does. I just wanted to clear that up.

The awkward question thing also happened last week in one of many Zoom calls recently organised by EISA, the international body of technical editors of which *Sound+Image* and *Australian Hi-Fi* are proud to be Australian members. At this time of year EISA normally hosts a big convention in Belgium, but of course it's all virtual this year, so we've been joining the Zooms from here in the evenings, and I'm very happy to spend the time doing so as most of them are useful and illuminating presentations on new technologies and kit, often with the key players and designers there online, taking questions at the end.

My first question this night was a general one. With the active speakers in our group test this issue, on several occasions there had been problems playing from the optical or HDMI ARC output of the TV we attached, with the sound either glitching or dipping every few seconds — perhaps a handshake or syncing problem between the TV and the DAC. Investigating further, I had found that one of the companies had a specific warning online for some TVs, and I had emailed them about it. This Zoom call was with a different company entirely, but they made similar products, so I asked if they had any knowledge of this being an issue.

As soon as I started my question I saw their engineer nodding, and he said yes, happens all the time, TVs are notoriously wayward in their data delivery, and with his company's DACs they test compatibility with as many TVs as possible, even taking them to stores to plug them into everything, then they monitor helplines for any other problems, and they issue firmware updates. Their new speakers were, indeed, specially designed to make such regular updates easy, he said.

Well that was a more informative answer than I was hoping for; I was pleased to have the general issue confirmed, and impressed with how they were dealing with it.

Then I meant to ask politely whether anyone had yet raised the question of their use of a metamaterial for a clever innovation in their latest speakers, when it didn't really seem to meet the normal definition of a metamaterial? This came out sounding rather more abrupt than I had intended, but as I say, I was asking because I didn't get it.

Some background: a metamaterial is a material which has been engineered to have a property which doesn't exist in nature. The company itself uses an example from the field of optics: "*Metamaterials are probably most familiar in the field of optics, where synthetic materials may be realised that have properties that cannot be found in nature. For example, a base material may be infused with another in varying density such that the refractive index varies throughout the material. Thus things like flat lenses may be constructed that are much easier to produce than grinding glass to a precise shape.*"

This new 'changed' material, then, is the metamaterial — it didn't previously exist in nature, and it has new properties which its ingredients didn't have on their own.

But this company's gadget isn't like that. It's a normal material that has been shaped to give it special properties. The material itself isn't changed in any way. So not really a metamaterial, just shaping an ordinary material.

The guy in the Zoom call said no, it's still a metamaterial if you change the shape to give it a new ability that the material doesn't have in nature. They do say this in their white paper: "*The term 'meta' has since gained the more general description of any material that exhibits characteristics foreign to the solid form. In this case, ABS has been moulded into a shape that is an almost ideal broadband absorber.*"

But if anything shaped for a new purpose qualifies as a metamaterial, then my coffee cup would be a metamaterial, because it's been shaped to contain a liquid. I said this on the Zoom call, waving my coffee cup. Indeed everything ever manufactured would be a metamaterial. A sharpened stick is a metamaterial because now you can stick it in things. A woofer, the voice coil, the basket, the dust cap, they're all metamaterials — all hi-fi products are stuffed full of metamaterials. And I don't think that's quite the product differentiation they were going for.

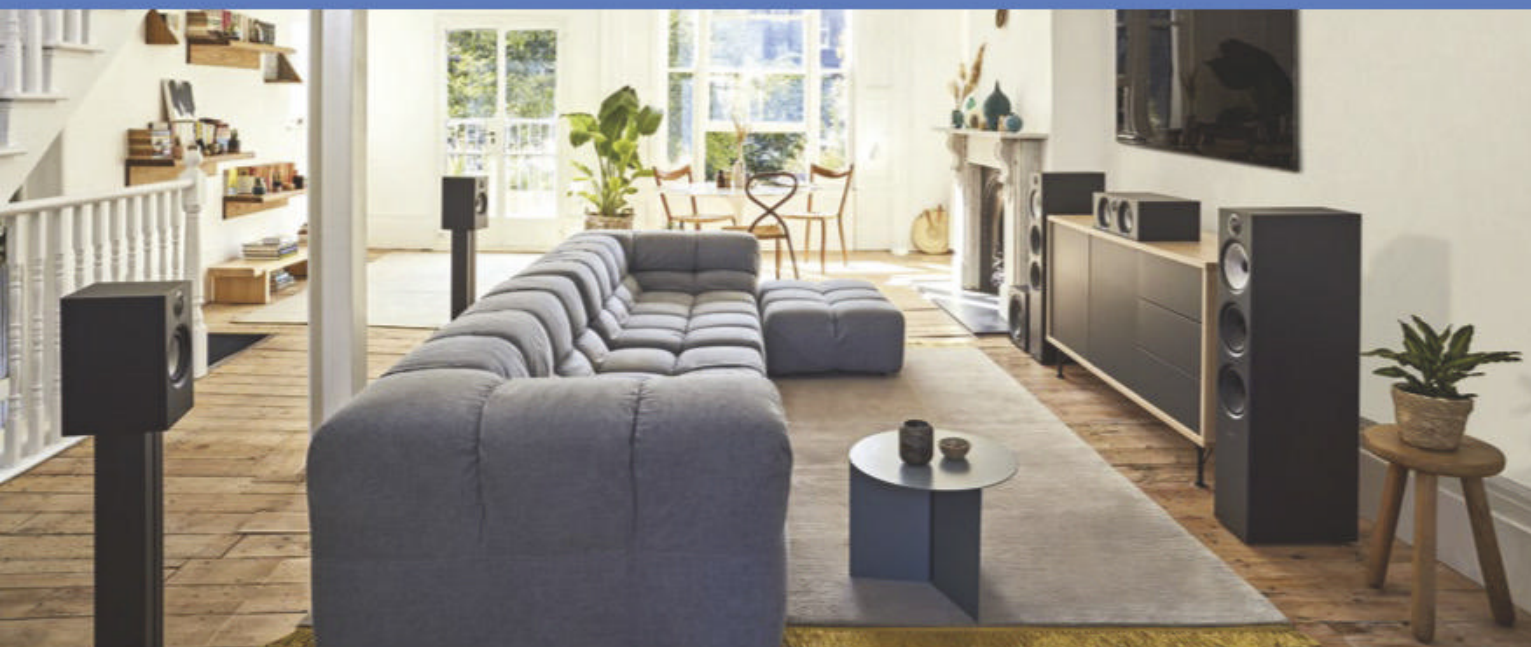
So I did follow up by email, and the reply from this most friendly and open engineer made an important point — some engineering metamaterials use repeating patterns at a very small scale to give a material new properties without actually changing the material itself. That's why they're calling this a metamaterial, even though the scale isn't that tiny, and theirs doesn't use repeating structures (which was, he said, a point they had discussed as questionable regarding their use of the word metamaterial).

That's an honest and open answer, the kind you might get face-to-face. And even if this thing isn't really 100% strictly a metamaterial, I'm perfectly happy to participate in calling it one for the purposes of describing the speakers. Besides, the important thing is that it seems to work, and to deliver a genuine sonic improvement. And I'm not going to argue with that!

Cheers,

**Jez Ford, Editor**





## BOWERS & WILKINS HOME THEATRE UPGRADE RETURNS.

Turn your 5.1 channel theatre system into a 7.1 system, at no additional cost, when you purchase a new surround speaker package from B&W. For example, if you are purchasing a B&W Mini Theatre Series 5.1 package you will receive a pair of in-ceiling speakers free of charge. Purchase a 600 series package and receive a pair of in-ceiling speakers, a

pair of bookshelf speakers or an additional subwoofer (depending on the system chosen). With the 700 series packages you will receive either an additional pair of bookshelf speakers or a pair of in-ceiling speakers.

Conditional on the package chosen these saving could be as much as \$2,400. This promotion finishes on June 30<sup>th</sup>.



## DENON HOME RE-POSITIONS PRICING.

There are several quality wireless multi-room speaker systems on the market, and one of the best is Denon Home (previously called HEOS). Their speaker range consists of three models, and they have just announced significant price drops on all three.

### **Denon Home 150:**

Reduced from \$529 to \$399.

### **Denon Home 250:**

Reduced from \$849 to \$699.

### **Denon Home 350:**

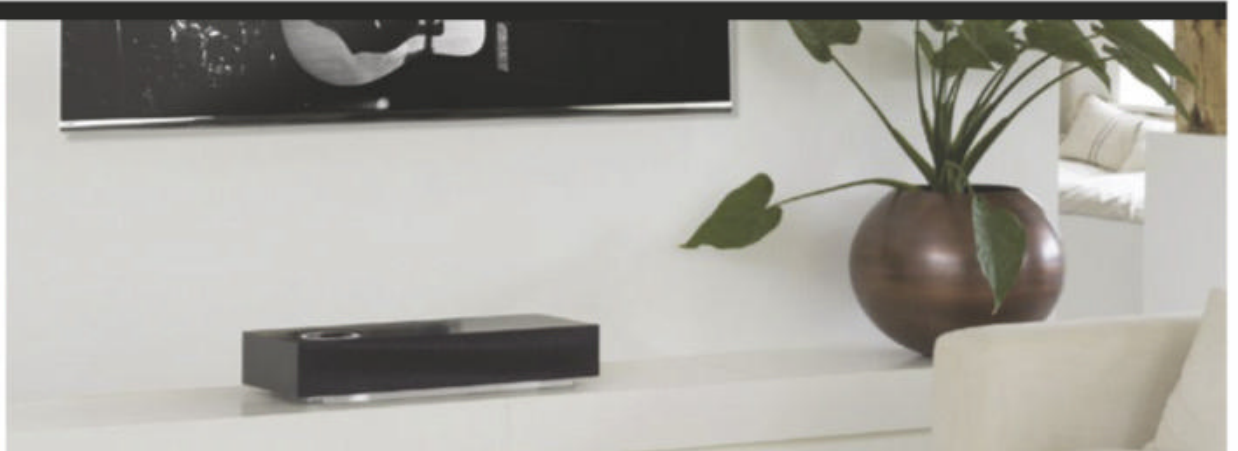
Reduced from \$1,199 to \$999.



## NEW(ISH) FROM MUSICAL FIDELITY.

We have had this unit for a month or so now, and it is a great indication of where Musical Fidelity is headed. Like the recently released M6sR DAC the new M3x Vinyl phono stage employs fully discrete circuitry – and is manufactured in Europe. There are many cheaper ways of producing this product, but few are better. And it shows in the performance. The M3x Vinyl sells for \$2,500, and in a market brimming with phono stages this is a standout for the price.

If you are using a quality turntable and still utilizing the phono stage built into your amplifier consider upgrading, you will be surprised at the difference this will make in the majority of cases.



## TRADE UP TO NAIM.

Naim Audio have also announced a very compelling promotion, also finishing on June 30<sup>th</sup>.

Trade in any Bluetooth speaker and receive 15% of either the Mu-so or the Muso QB wireless speaker. If you have not had the opportunity to listen to the Mu-so speakers we would encourage you to do so, they are excellent.

Plus; trade-in any Hi-Fi component on a Naim component and again receive a minimum of 15% off. It

does not need to be like-for-like (i.e. an amp for an amp), and it is not condition dependent.

If your trade-in is salable, it will also go to a good cause – all funds generated the sale of trade-ins generated from this promotion will be donated to The Wayside Chapel in Potts Point.

This is a great opportunity to step into a Naim component, clear some of the clutter at home, and raise some money for a good cause.





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PO Box 1077, Mount Street,  
North Sydney, NSW 2059  
Tel: 02 9955 2677 Fax: 02 9955 2688  
[www.whathifi.com/soundandimage](http://www.whathifi.com/soundandimage)

Editor: Jez Ford

Art Director: Kristian Hagen

Advertising Sales Manager: Lewis Preece

Advertising Traffic: Di Preece  
[diane.preece@futurenet.com](mailto:diane.preece@futurenet.com)

Divisional Manager & National Advertising  
Sales Manager: Jim Preece  
[jim.preece@futurenet.com](mailto:jim.preece@futurenet.com)

Managing Director: Neville Daniels

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news

Yamaha Aventage



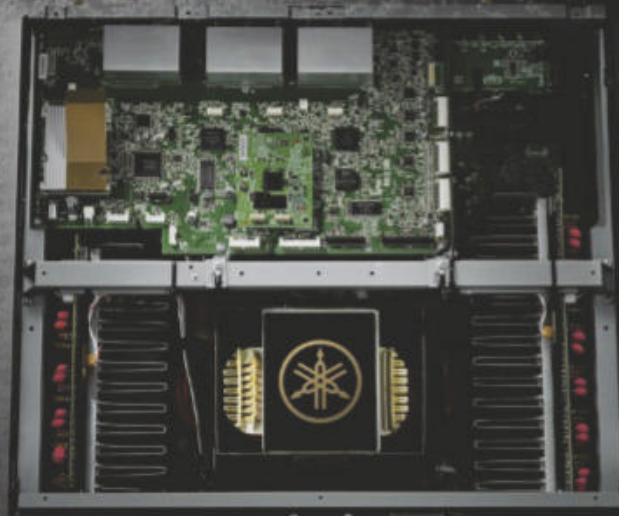
# Aventage for a new decade

Yamaha has finally released information on four new models for its 10th generation of Aventage premium AV receivers.

The RX-A8A, RX-A6A and RX-A4A offer 11, 9 and 7 channels respectively, joining the 7-channel RX-A2A which we have reviewed in this issue. That RX-A2A model is available now, with the RX-A8A available in Australia from June. Release dates for the RX-A6A and RX-A4A are yet to be confirmed.

They represent the biggest change in external design since Aventage made its debut in 2010, with a simplified modern design moving the main volume knob to the centre, a new high-resolution LCD display to the right with a rotary jog dial and touch-sensitive buttons. The sound quality is also enhanced, says the company.

*“We broke the mould when we premiered our flagship Aventage series in 2010,” says Yoshi Tsugawa, Senior Gen. Manager of Yamaha Japan’s Home Audio Division. “Now we’ve re-engineered it from the ground up, shattering expectations for what’s possible for an AV receiver to reproduce True Sound. Not only do these new Aventage AV receivers stay in lockstep with emerging tech — such as the latest gaming consoles and rising resolution of TV screens — but they also stay one step ahead in anticipating customers’ future needs.”*



The key power specs through the range run from 150W × 11 channels on the RX-A8A, 150W × 9 from the RX-A6A, then 110W × 7 and 100W × 7 for the A4A and A2A models, with high slew-rate amplifiers claiming to more than double the performance of the previous generation. All feature HDMI 2.1 inputs (three on the A2A, all seven on the others) and outputs (one on the A2A, three on the others). Currently the inputs on the released RX-A2A are good to 4K/60, but a future update will see all models able to pass 8K/60 and 4K/120, including gaming features such as ALLM, VRR, QFT and QMS.

The issue with non-standard 4K/120 output from Microsoft Xbox and Nvidia RTX 30 graphics cards, for which some companies are now issuing HDMI adaptors, will be addressed with a hardware HDMI board update for the RX-A2A and for RX-V models affected, *“ensuring any customers wishing to utilise this specific feature are looked after”*, we’re told by Yamaha in Australia.

We gather the RX-A4A, RX-A6A and RX-A8A are all unaffected by the early HDMI issue.

Meanwhile the receiver’s audio benefits from premier SABRE DACs from ESS Technology and quad-core audio processing supporting Dolby Atmos and DTS:X, with Auro-3D to come on the top two models. All Aventage models feature Surround:AI, a proprietary Yamaha technology that aims to optimise the sound quality of dialogue, background music and sound effects in real time. All also include Yamaha’s room acoustics optimizer (YPAO) that optimises the performance of your speakers to your room.

There is also the significant bonus of Yamaha’s streaming and multi-room MusicCast platform delivering key streaming services, AirPlay 2, multi-room audio and voice control via Alexa, Google and Siri-enabled devices.

The Yamaha RX-A8A comes with a 10-year manufacturer’s warranty, while the RX-A6A, RX-A4A and RX-A2A each have a five-year warranty. Prices are \$1599 for the RX-A2A, then \$2399, \$3699 and finally \$6299 for the RX-A8A. More information: [au.yamaha.com](http://au.yamaha.com)



# Studio sound from JBL

If you're seeking a solid studio-like sound without the overtly 'Classic' overtones of JBL's L100 reboot, the company will soon be releasing these new **JBL 4309 Studio Monitor** compact two-way speakers, which combine a certain pro-heritage-style aesthetic with the latest technologies, packaged together in a relatively small form factor, just 42cm high.

The 4309s are equipped with a 2410H-2 Teonex 25mm compression driver mated to JBL's latest High-Definition Imaging (HDI) horn, and a 165mm (6.5-inch) pure-pulp cone bass/midrange driver. The 2410H-2 has a lightweight polymer annular diaphragm that improves high-frequency extension by reducing diaphragm mass, and a V-shaped geometry that reduces break-up modes, aiming to eliminate time smear and reduce distortion. The long-throw bass/midrange driver has a cast frame and 39mm diameter voice coil within JBL's symmetrical field motor design, which includes both flux stabilisation and copper-shortening rings to reduce distortion.



Crossover between the two drivers is managed by a network that uses air-cored inductors, cast wire-wound resistors and low-ESR metallised film capacitors. JBL rates the 4309 with a frequency response of 42Hz–30kHz –6dB, a sensitivity of 87dB SPL (2.83V/1m) and a nominal impedance of four ohms.

The finish follows classic JBL monitor design livery, with the iconic blue baffle and a choice of furniture-grade satin wood veneers in walnut with dark blue grilles or black walnut with black grilles (pictured above).



Dual sets of gold-plated binding posts enable your choice of single- or bi-wire/bi-amplified connection.

Availability is slated for September, with a retail price of \$3999 per pair. More info: [www.convoy.com.au/jblsynthesis](http://www.convoy.com.au/jblsynthesis)

## 4K/120Hz HDMI ISSUE CLARIFIED

In recent months there have been reports that the first release of HDMI 2.1 silicon, as featured in the first releases of 8K-compatible AV receivers, may have issues when passing video signals at 4K/120 to a compatible screen. We now have it confirmed that this is a specific issue with Microsoft's new Xbox consoles and

Nvidia RTX 30 series graphics cards not conforming to expected specifications, forcing manufacturers to deliver work-arounds for those affected, even though they are likely very few in number.

Sound United has announced in Europe that HDMI adaptors will be available via redemption for those with 8K Denon and Marantz receivers that

are affected; we await confirmation for Australia. Yamaha tells us that it will ensure customers wishing to utilise this specific feature "will be looked after" (in the US a hardware upgrade programme has been announced for Q3 2021).



# Transparent offers \$112,050 speaker cables



We often remind readers who are building a system to remember to retain perhaps 10% of their system budget for cables. So it will need a fairly esoteric system for that 10% to stretch to the latest line of Transparent's Generation 6 'Connoisseur Collection' of cables and interconnects. A 2.4-metre-long pair of top-of-the-line **Transparent Magnum Opus speaker cable**, for example (with its newly-configured stiffer and heavier polymethyl methacrylate plinth and isolation feet for the custom-machined constrained-layer-damped-acrylic carapace platform with its thick carbon-fibre sheet embedded in epoxy resin), has an Australian RRP of \$112,050. But there are many ranges at more affordable prices: the pictured Opus cable is only a little more than half that price. They are distributed here by Advance Audio: [www.advanceaudio.com.au](http://www.advanceaudio.com.au)



# Hisense

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Pure Colour



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**Dolby Atmos**

Powerful  
Surround Sound

120" SCREEN\* + POWERFUL 4K ULTRA  
SHORT THROW PROJECTOR

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\*Model 120L5F. Installation available at additional cost.

**FOR MORE INFORMATION VISIT [HISENSE.COM.AU/LASERCINEMA](https://hisense.com.au/lasercinema)**





## Cambridge goes all-in-one

Cambridge Audio has released two versions of an all-in-one streaming amplifier which aims to offer a complete just-add-speakers solution. The \$3299 **Cambridge evo 75** is rated with an output of 75W per channel and the \$4299 **evo 150** at 150W per channel, both using the highly-regarded Hypex Ncore 'Class-D' modules for their power.

The company's 'StreamMagic' streaming platform is

onboard, enabling easy access to online music services including Spotify Connect, Tidal Connect, Qobuz and internet radio, while there is also both Chromecast and AirPlay 2, plus Bluetooth with AAC and aptX HD codecs, so the evos can easily handle streaming from any

other apps. There's also DLNA available for network streaming, while ESS Sabre DACs are used for the digital-to-analogue conversion — the ES9016K2M DAC in the evo 75 and the ES9018K2M in the evo 150.

You can also integrate the Evo with your existing equipment, with both models having both digital and analogue inputs, though these are differentiated by model. So the evo 75 has a single RCA analogue input, one optical digital, one coaxial digital, USB-A for playback from sticks and drives, plus an HDMI ARC socket for playing audio from a compatible TV. The rather more packed back panel of the evo 150 adds two further analogue inputs — one being at phono level for a turntable, the other on balanced XLR sockets — and two digital inputs, with an additional optical input and also a handy USB-B input to play from computer. The evo 150 also gains a second pair of loudspeaker outputs. Both models offer pre-outs and a subwoofer output, while

a minijack socket on both units is described as "a dedicated connection from an Evo CD player" — we gather an evo CD transport will be arriving later in the year.

The stylish exterior has been designed in London by Ged Martin, the chassis being an aluminium cabinet with removable side panels allowing your choice of walnut (pictured below right) or a new material made from recycled paper called Richlite (above). The front panel is dominated by a large 173mm full-colour LCD display and a multi-function dual-concentric rotary control that supplements the unit's ability to be controlled from phone, tablet or the included and unusual small remote control. More information: [www.synergiaudio.com](http://www.synergiaudio.com)

## Grado's 'x' factor

Grado's Prestige headphones were the original range designed by John Grado when in 1990 he bought the company from his uncle Joseph, a former Tiffany watchmaker who had begun making phono cartridges in the 1950s. Nephew John had been with the company since 1965, watching the rise and then fall in cartridge demand during the 1980s; the Prestige line of Grado headphones were, indeed, the saviour of the company.

This latest Prestige X Series gains enhanced drivers, enhanced cable designs and more comfortable headbands, the drivers in all five models using newly designed voice-coils and diaphragms along with a magnetic circuit that has been revised in such a way as to improve efficiency, reduce distortion and linearise the frequency response, also making them easier to drive across a variety of portable devices. The range starts with the \$130 SR60x and rises to the top-of-the-line RS325X model at \$419. More information: [www.buisoft.com.au](http://www.buisoft.com.au)





# Reserve roll-out from Polk



Power Port 2.0

Polk's position within the Sound United stable of products has given it a new home in Australia alongside the rest of Sound United's brands: Boston Acoustics, Bowers & Wilkins, Classé, Definitive Technology, Denon and Marantz. The change coincides with a new range — the **Polk Reserve series of speakers**, which sits just below the company's premium Legend series. Indeed the new speakers use the same custom-made drivers developed for the Legends, including the proprietary Pinnacle tweeter and 'turbine cone' midrange.

The Reserve range is extensive indeed, with three floorstanding models, three centres, two standmounts and a pair of height modules which can sit atop other Reserve series speakers or be mounted to the wall to deliver the height effects of Dolby Atmos and DTS:X. Needless to say, then, the Polk Reserve series caters to home cinemas use as well as stereo listening. All models are available in matte black, matte white, and the walnut finish pictured above.

In addition to Polk Audio's high-res-capable Pinnacle ring radiator with its distinctive pointed waveguide delivering a wider sweet spot, and the turbine cone drivers with foam cores that dramatically increase stiffness and damping, the new Reserve speakers also leverage key technologies including Polk's new Power Port 2.0 in the floorstanding R600 and R700 (cutaway left). Polk's original Power Port was patented in 1996, and minimised air turbulence by attaching a waveguide to the opening of the port.

*"The original PowerPort was all about bass performance and to avoid port noise," Polk told us at a special presentation to EISA members. "The port on a loudspeaker helps to get more lower frequencies and helps to increase sensitivity of the speaker — but maybe nobody told you that this comes at a price."*

So Power Port 2.0 works also to clean up the upper bass and midrange: *"On top of the cone of the waveguide we build a 'hollow pole' with an opening that is halfway in the port. Tuning of this pipe is done to multiples of tuning of the port frequency."* The effect is significant, notably reducing a 14dB resonance peak at 700Hz.

In the bookshelf models and the smaller floorstander Polk has applied the same principle to a new X-Port at the rear, which uses a set of closed-pipe absorbers tuned to the internal frequency of the cabinet, maintaining the bass but clarifying the upper bass and midrange.

Further relieving resonance in the floorstanders is a new internal bracing Polk calls Column Resonance Control (CRC).

*"The biggest and most annoying resonance of a floorstander is between the foot and the top plate," Polk tells us. "Depending on the height of the cabinet this is usually between 150 and 200Hz. Our CRC construction clearly eliminates the resonance peak of the cabinet — the result is uncoloured bass and midrange."*

The top floorstanding R700 will retail for \$3299 per pair (RRP); we await full pricing for the rest of the range. More info: [au.polkaudio.com](http://au.polkaudio.com)



# Qobuz & Apple

## What price high-res streaming?

As previewed last issue, Qobuz has finally launched its music subscription and download service here in Australia. The French-born Qobuz (pronounced *koh-buzz*) is unique in offering both streaming and downloads at high resolution up to 24-bit/192kHz, and it claims the “richest choice of catalogue in Hi-Res quality.”

Crucially its streaming arrives in uncompressed FLAC format, sounding impeccable in the month we’ve spent enjoying the desktop app (see reviews this issue), with all files at a minimum of CD quality, a great many at 24-bit/44.1 or 48kHz, and others rising to 24/96 and 24/192. You can set your streaming quality from the maximum resolution down to 320k MP3 should your bandwidth be causing streaming issues with the larger files.

The desktop app is neat, attractive and well-curated, with new playlists specific to Australian and New Zealand artists both established and upcoming, and often extensive information provided via magazine-style articles. Qobuz also integrates directly with Roon, the only service other than Tidal currently to do so.

But you have to feel a little sorry for Qobuz on the timing of their Australian launch. Initially it seemed well placed to take advantage of recent audiophile criticism of the MQA technology used by main rival Tidal, making Qobuz’s lossless high-res FLAC streaming service increasingly attractive, although it offers only one tier for users, and that not cheap at \$24.99/month, or \$19.19 a month if you stump up in advance for a 12-month subscription.

### Apple & Amazon disrupt the market

Then along comes Apple, announcing a June launch of lossless ALAC streaming “in resolutions ranging from 16-bit/44.1kHz up to 24-bit/192kHz”. We’re told there will be

20 million songs in lossless audio at launch, with a full 75 million available by the end of the year. Crucially this will come at no extra cost over the standard subscription. New subscribers can get up to four months of free trial to Apple Music, then pay \$11.99 a month. In settings you will be able to select between three playback levels: CD quality (16-bit/44.1kHz), 24-bit/48kHz, and 24-bit/192kHz. While up to 24-bit/48kHz can be played natively on Apple devices (requiring an iPhone or iPad updated to iOS or iPadOS 14.6), 24/96 or 24/192 playback will require an external DAC, either home-based or portable (AudioQuest has already begun promoting its DragonFly portable DACs as an ideal solution).

Of course you won’t be able to enjoy lossless via Bluetooth headphones, because no Bluetooth codec — certainly not Apple’s preferred AAC, and not aptX nor aptX HD nor LDAC either — is truly lossy.

### Atmos streaming

Apple will also offer “Spatial Audio with support for Dolby Atmos”, stating that Apple Music will automatically play Dolby Atmos tracks on all AirPods and Beats headphones with an H1 or W1 chip, as well as the built-in speakers in the latest versions of iPhone, iPad, and Mac. Dolby Atmos from your iPhone speakers? Home cinema fans may join us in finding that idea faintly ridiculous, but we certainly look forward to a feast of Atmos music piped to an AV receiver, assuming Apple’s Music desktop app will be made able to easily follow changes in sampling rates

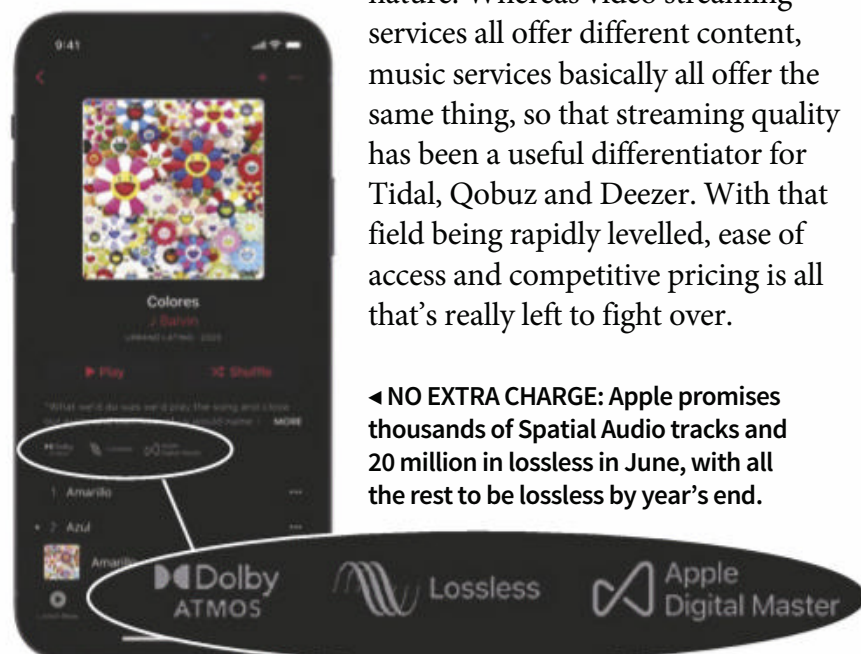
— something hitherto absent and requiring either manual changes in the Audio-MIDI interface, a third-party wrapper like Amarra or a separate playback program like Roon.

### Amazon & Spotify

Amazon has also announced that its HD Music offering will now cost no extra, though this higher-res version of its music streaming service isn’t yet available to Australia anyway. But in global terms the Apple/Amazon approach puts great pressure on the premium pricing currently required for Tidal, Deezer and Qobuz high-res subscriptions. Tidal has added a CD-quality tier priced below its high-res level, and the changes may also lead Spotify to reconsider pricing for its ‘HiFi’ playback level, due later (perhaps now sooner) this year, especially since Spotify HiFi will deliver CD quality but no higher. While lossless CD-quality Spotify Connect would be an attractive upgrade for many users, against all-inclusive Apple and Amazon high-res pricing, how much extra could Spotify charge?

The ultra-competitiveness of the music streaming market lies in its commoditised nature. Whereas video streaming services all offer different content, music services basically all offer the same thing, so that streaming quality has been a useful differentiator for Tidal, Qobuz and Deezer. With that field being rapidly levelled, ease of access and competitive pricing is all that’s really left to fight over.

◀ **NO EXTRA CHARGE:** Apple promises thousands of Spatial Audio tracks and 20 million in lossless in June, with all the rest to be lossless by year’s end.





## Little Lindemann Limetrees

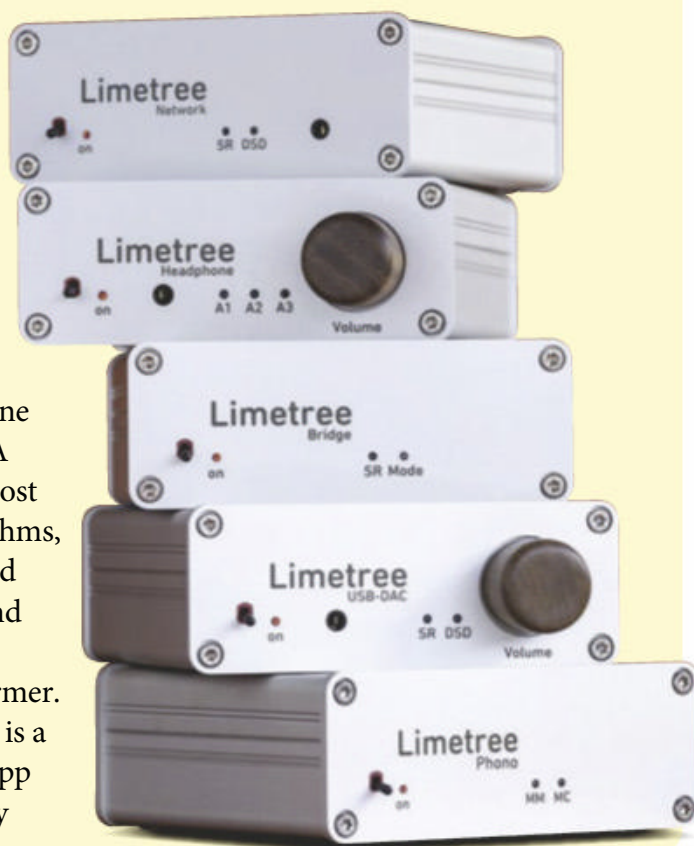
**M**agenta Audio is bringing Lindemann's small format Limetree series to Australia — although as Magenta emphasises, “the only thing that isn't small — is the music”. The Limetree line is currently four strong, all neatly named after their various functions. So the \$1150 **Lindemann Limetree Phono** is a phono stage with two discrete input stages tuned respectively for moving-magnet or moving-coil cartridges, the latter having input impedance switchable between 50 and 400 ohms.

The \$1150 **Limetree Headphone** is a high-grade headphone amp which can also be used as a preamp, with three RCA analogue inputs and one output. Its current-driven Class-A circuitry is capable of driving almost any headphones from 16 to 300 ohms, while it also features a pro-sourced fully-analogue volume control, and a super-clean power supply with ‘medical grade’ wall-plug transformer.

The \$1695 **Limetree Network** is a high-grade network player with app control via Wi-Fi/Ethernet to play

from streaming services and local USB storage media in “studio master quality” to its analogue line-level or high-quality headphone output.

The \$1420 **Limetree Bridge** offers the same network playback as the Network, but with optical and coaxial digital outputs for an external DAC. More info: [www.magentaaudio.com.au](http://www.magentaaudio.com.au)



## JBL's Bar 5.0 MultiBeam

**W**e're always keen to try soundbars which aim to work without a subwoofer, like JBL's \$599.95 **Bar 5.0 Multibeam**. The 71cm-wide bar incorporates five powered race-track drivers measuring 80x45mm, each with amplifier power of 50W (measured at 1% THD), along with four passive 75mm bass radiators to supplement the low-end using the drivers' back energy within the cabinet.

There's built-in Virtual Dolby Atmos to benefit movie and gaming sound, while JBL's MultiBeam technology aims to create a wide soundstage, including Automatic MultiBeam Calibration (AMC) using the remote as the microphone sensor.

The Bar has one HDMI input capable of 4K Dolby Vision passthrough to the HDMI output, which also supports eARC to play

audio back from your TV, including multichannel formats if your TV obliges. There's also an optical audio input, though no analogue, while the USB-A slot curiously supports file playback in the US, but not here.

The Bar 5.0 aims to play nice with music too, assisted by Bluetooth, and networking to deliver built-in Chromecast, Apple AirPlay, and Alexa Multi-Room Music (MRM). We hope to have a review next issue; meanwhile more info at [www.jbl.com.au](http://www.jbl.com.au)



## New Nodes

**N**ew Nodes is good news! Bluesound has released a new generation of its **Node streamer** and **Powernode streaming amplifier**, both models upgraded with new digital-to-analogue converters, more powerful DSP processors, and touch-panel controls with presets and proximity sensors. The Node is designed to play into an existing audio system, while the Powernode is a ‘just add speakers’ solution, its onboard power now 80W per channel of HybridDigital amplification (two channels driven, no distortion figures quoted, but being NAD's sister company, they're probably reasonable; also quoted is IHF Dynamic Power of 220W into 4 ohms).

The BluOS platform onboard both models connects to key streaming services including Spotify, Tidal and Qobuz, with MQA decoding onboard to ‘unfold’ Tidal Masters to high resolution. It will also build a rapid access library from networked music via UPnP and from connected USB sticks and drives, and can also stream directly using Apple AirPlay 2 or Bluetooth with aptX HD (both inwards from a portable device or computer and outwards to Bluetooth headphones). Both devices are certified as Roon Ready.

While they are thus sources in themselves, both units also have connections to add external sources: an HDMI eARC socket to play from compatible televisions, a USB-A socket for sticks and drives, one combo analogue/optical minijack input on the Node, and two on the Powernode.

The outputs on the smaller Node include analogue RCA line level, optical and coaxial digital, a subwoofer output and a trigger out. On the powered Powernode there are speaker outputs and a subwoofer out.

The new DAC is a 32-bit/384kHz design, though both units still support native sampling rates only to 24-bit/192kHz. Then of course there's the multiroom side of BluOS, where a few taps of the BluOS Controller app can combine different zones of BluOS for group playback. Additional hands-free controls are available through voice assistants like Siri, Google Voice, or Alexa. For smart-home installers, fully-featured drivers are available for Lutron, Crestron, RTI, Elan, and other popular control systems.

The Bluesound Node retails for \$999, and the Bluesound Powernode for \$1499, both available in a black or white satin finish. More info: [bluesound.com.au](http://bluesound.com.au)





# Two shiners from Sony

Sony has premiered a long-awaited sequel to its most affordable native 4K projector, with the **Sony VPL-VW290ES** replacing the VPL-VW270ES, adding Sony's 'X1 for projector' processor to boost HDR, picture detail and motion processing.

The 'X1 for projector' allows frame-by-frame analysis as developed for Sony's Bravia TVs, and even though there's no built-in support for Dolby Vision or HDR10+, Sony's own Dynamic HDR Enhancer can optimise the HDR on the fly. It retains the same brightness specs and SXRD projector panel technology as its predecessor, offering up to 1500 lumens from its bulb light source, and retailing at \$8999.

For something even more serious, Sony has updated its 800-series SXRD machine. The **Sony VPL-VW890ES** benefits from the same X1 processor addition, but the \$38,999 price brings access to a laser light source and the all-glass ARC-F lens, an 18-element 15-group large diameter lens designed for higher resolving power and a better and more consistent control of focus and colour across the whole screen. More info: [www.audioactive.com.au](http://www.audioactive.com.au)



Sonance has made this issue's 'Spot The Invisible Speaker' competition rather easy by framing them neatly either side of a TV. The company's new **Motion Flex Invisible Series** employs wide-bandwidth Wave Flex drive units which behave as combined high-bandwidth midrange and high-frequency transducers, then a low crossover to carbon-fibre Air Flex woofers which connect to a chamber of air behind the speaker diaphragm, allowing sufficient excursion to produce promised "robust and powerful bass". A repeatable and simple installation process includes a high-accuracy depth gauge and embedded locator discs to measure the thickness of a finish applied over the surface of the speaker. Six new models are available. For more information visit [www.ambertech.com.au](http://www.ambertech.com.au)

It may seem a familiar look for those who have visited Australian hi-fi shows, but this modular false-wall design for behind-screen home cinema use comes not from South Australia but from US manufacturer Klipsch. The **Real Custom Cinema** systems are designed and built in Arkansas, USA, leveraging the company's experience in real cinemas to provide combined LCR and subwoofer packages for the home market.

There are three versions. The **RCC-102-BTS** is designed for rooms up to 30m<sup>3</sup> and screens of 117-129-inch 16:9 ratio, or 110-121-inch 2.35:1. The LCR modules have 1.75-inch titanium-diaphragm compression drivers and 15-inch polyfibre woofers, while the sub modules have 18-inch polyfibre drivers. Next size up is the **RCC-112-BTS**, with larger 3-inch compression drivers, and suited to rooms up to 55m<sup>3</sup> and screens of 128-140-inch for 16:9 or 122-132-inch for 2.35:1. Finally the RCC-122-BTS enlarges the voice coils for all the woofers to deliver a system suited to rooms up to 85m<sup>3</sup> and screens of 140-inch for 16:9 or 132-inch for 2.35:1.

Klipsch's Australian distributor Premium Audio Co. has announced that from June Snap AV will be a national distribution partner for the RCC series.







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**Yamaha**  
Aventage RX-A2A  
networked AV receiver

## New Age, new decade

**Aventage meant 'AV entertainment for a new age'. As this award-winning series of receivers enters its second decade, we review the first and most affordable release from the range.**

It's been longer than usual in the waiting, delayed by the pandemic, but now it's ready for launch — Yamaha's 10th series of Aventage receivers. First launched in 2010, they were the result of Yamaha rethinking every element of their longstanding receiver designs, a grand reset for a new decade — Aventage is a portmanteau of 'AV entertainment for a new age'. They gained instant success, followed each year by iterative improvements that have maintained the momentum through the addition of Dolby Atmos height channels, Yamaha's MusicCast streaming multiroom platform, and the endless other pieces and abilities that go to make the model of a modern receiver. Their success can be gauged by an Aventage receiver having won the top Sound+Image receiver award every year possible.

Now we have a new decade, and here is the first receiver from Aventage Series 10, the relatively humble Aventage RX-A2A. In a great many ways it's pretty much exactly what we would expect. In others it surprised us, and in one particular way, it reversed an antipathy we've held for nearly 30 years.

### Equipment

Junior Aventage model the RX-A2A may be, but it's a substantial receiver at more than 10kg, and with the usual full-width double-height, even though there's a little empty space on the back these days, thanks to the neatening effect of HDMI connections over multi-cable AV. The unit sits not on four legs but on five, the fifth central support (or A.R.T. Anti Resonance Technology) having long been an Aventage differentiator providing extra rigidity to the construction. Only the top panel with its venting slots presents an obviously plastic surface.

There is a distinct restyling here for Aventage 10. Gone is the wide central display with endless small lights and logos, shortened now and shifted to the right, allowing the main volume knob to go dead centre, larger and more tempting to use, further encouraged by its nicely weighted mild resistance to moving. Gone is the big flap hiding front inputs and controls, largely redundant in this age of app control and on-screen menus. The only front-panel socketry remaining is a full-size headphone socket, a USB-A slot with 5V charging, and a small socket into which the microphone plugs for Yamaha's YPAO auto-calibration process.

The input selector moves to the right, joined by the valuable addition of four Scene buttons which instantly recall a preferred set-up scenario — perhaps one for movies, one for music, others for experimenting with different processing options. There are in fact eight Scene memories, with the other four directly selectable using the remote control.

Overall the new styling is similar to that introduced earlier this year with Yamaha's latest RX-V range, but with more angled corners than the RX-V's soft verticals.

### Configurations

The RX-A2A carries seven channels of power, each rated at 100W into eight ohms when using reasonably hi-fi-level parameters (across 20-20kHz with 0.06% THD, two channels driven). For comparative purposes against less confidently-stated rivals, Yamaha lists 150W when measured at 1kHz with 10% THD allowed, a standard often used for quoting AV-related amplification.

The seven channels of amplification are joined by two non-differentiated subwoofer outputs to allow speaker configurations of 7.1 channels on the floor or, since there is Dolby Atmos and DTS:X decoding here, of 5.1.2 with two ceiling speakers delivering height signals.

#### SUMMARY

**Yamaha RX-A2A**  
networked AV receiver  
Price: \$1599

- + Excellent audio performance
- + Flexible channel use
- + MusicCast onboard
- Often need to turn off all processing for the best sound



If you are only running 5.1 channels, that leaves two spare amplifier channels which can be used for powering stereo in a second zone. Remote in/out sockets allow infrared extenders to control the unit from the other room, though app control may well be all you need these days. You can play from a different source in the two rooms, such as TV sound in a lounge, and radio in a study.

Indeed even if you're running all seven channels in your main room you can still wire up speakers in a second zone using the amusingly-named Zone Out preout sockets and a separate amplifier, or by using the spare set of speaker connections on the back, as there are nine pairs, rather than seven. If you wire up Zone 2 using these, then whenever you turn on Zone 2 using the remote control, it turns off two of the speakers in your main room (either rear surround or height, depending on whether you're in 7.1 or 5.1.2).

Spare amplifier channels can also be used to biamp your main speakers, physically wiring tweeters and woofers separately, so this requires bi-wirable four-input speakers.

There are also separate line-level unbalanced pre-outs for the front channels so that you could use higher quality power for these if you wish, although there's no way to harness the abandoned channels if you do so. Similarly certain MusicCast wireless speakers can be used as wireless rears for cable-free convenience, though leaving redundant the power you've paid for, and restricting the ability to have matching speakers all round.

All the connection labels and the explanations in the manual are somewhat complicated by Yamaha's continued promotion of using extra front 'presence' speakers up high, rather than the far more commonly-used Atmos-style overhead speakers, which seem almost an afterthought in the literature. We've never ever seen a front presence system except in Yamaha's own demos, and it might perhaps be time for the company to start leaving this mythical layout behind, to deconvolute the options presented.

## Setting up

We listened in 5.1.2, bare-wiring our centre, rear and height speakers into the medium-quality binding posts provided for all speaker connections, their spacing tight enough to make this a frightening fiddly process after which you will deserve a good cup of tea. To insert the banana-terminated cables for our front pair we had to prise out the plastic centres in the binding posts (inserted, we presume, to comply with Euro regs). Finally our Krix Seismix 3 subwoofer got a line-level link from one of the subwoofer outputs.

► iPad Pro layout of MusicCast on the RX-A2A, showing Scene access in the second row, then music services and all the many many inputs.

**“A great many 5.1 music mixes under-utilise the genre, especially live recordings. But find something more thoughtful, and the party begins...”**

As for inputs, well, nothing matches a good receiver for versatility of inputs. The RX-A2A has seven HDMI inputs and one output with eARC, all supporting passthrough of up to 4K/60 for 10 or 12-bit signals.

For audio there are three line-level analogue audio inputs and a phono input for turntable, and in the only area you might feel under-equipped, one optical and one coaxial input.

To the HDMI inputs we connected a 4K Panasonic Blu-ray source and AppleTV 4K. Our turntable and computer audio, the latter via a DAC, plugged into the analogue inputs, and the HDMI output ran to our 4K TV, also for a while into the BenQ projector reviewed elsewhere in this issue. Remarkably, given the profusion of cables, everything worked first time. One nice touch on the speaker connections is that if your bare-wire cables have frayed and accidentally shorted between the binding posts, you'll get a front-panel warning to 'Check SP wires', rather than anything blowing up or simply not working.

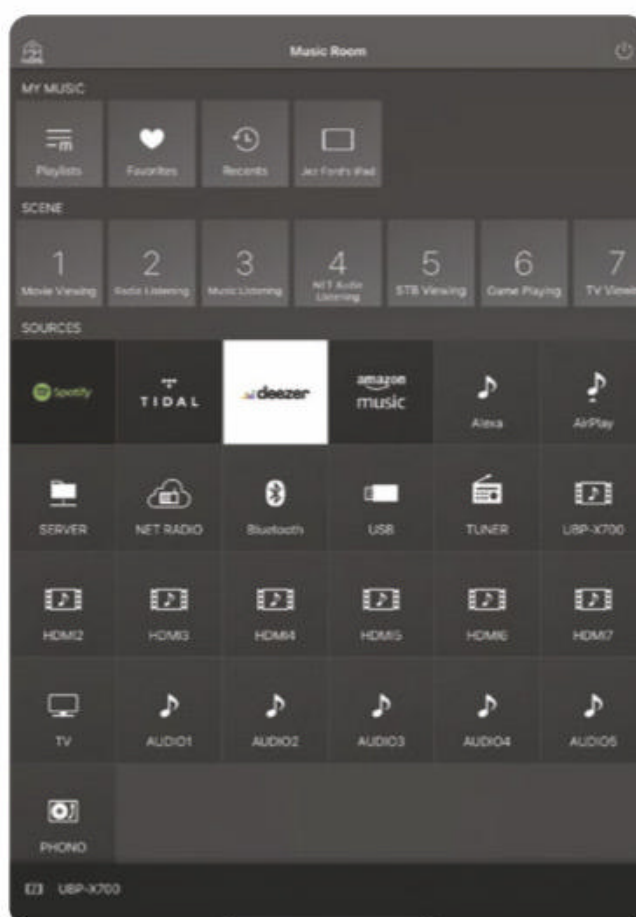
Yamaha offers YPAO (Yamaha Parametric room Acoustic Optimizer) to automatically adjust speaker distances, volumes and other acoustic parameters. We set up manually first, which is easy enough to do through the on-screen menus, selecting the correct speaker layout, setting their distances, then using the built-in test tones to check each speaker's level. Then we invoked YPAO to see what it did differently, and after plugging in the little

microphone so the system could make its series of whoops and blasts (either for one position or several) it proved very effective, other than returning a warning — not an error — that something was out of phase. According to Yamaha's FAQs, reinforced by forum chat, YPAO can give this phase warning even when nothing is out of phase, thereby leading you into a long unnecessary cable check. But we did indeed find one height channel reversed, which would have been hard to hear otherwise. So good work YPAO!

We used our ears to check the balance of YPAO's levels with an Atmos test Blu-ray, and also pulled out Peter Gabriel's 'Play' compilation DVD, which has a remarkable set of DTS 5.1 mixes in 24-bit/96kHz by Daniel Lanois, where the bass and Gabriel's vocals have been mixed to emerge from all speakers equally and simultaneously, so that they centre at the listening position. Such positioning is highly unusual in general surround mixing since it requires a single critical listening position; the opening voiceover of *Mad Max: Fury Road* is similarly positioned, though more as a 'voice of God' narration, whereas the more musical Gabriel vocals should focus precisely; they thereby reveal immediately both any skewed levels and also any tonal differences between your speakers, including phase issues. With everything adjusted to put Mr Peter perfectly within our noggin, we proceeded to more conventional listening.

## Listening

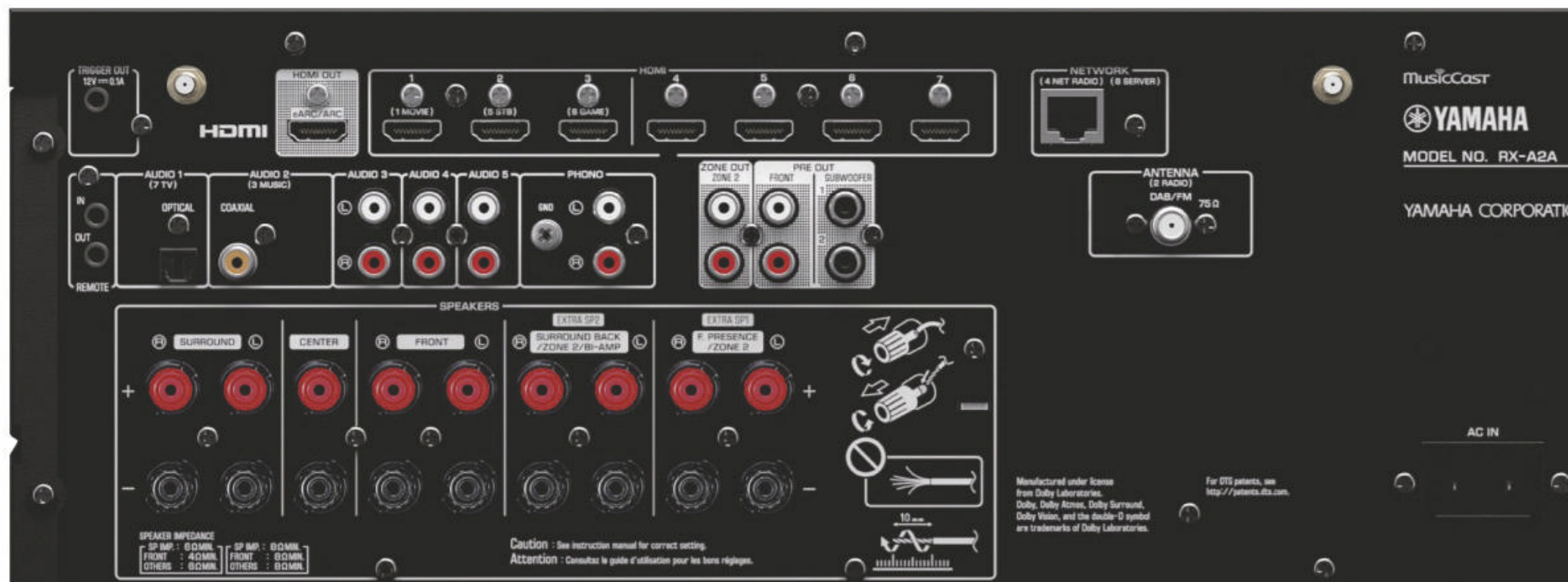
We began with multichannel music, something often neglected but perhaps about to get a boost from Apple's new Atmos Music service. It's certainly absolutely thrilling with a good surround system. A great many 5.1 music mixes under-utilise the genre, especially live recordings, which are often little more than stereo or front three channels plus live ambience from the rears. But find something more thoughtful, and the party begins. Queen was an early pioneer here, its *Greatest Hits* DVDs having marvellously imaginative 24-bit/96kHz DTS 5.1 mixes, and we soon had the Yamaha delivering a whole bonus dimension in musical entertainment with the layered vocals of *Bicycle Race* popping out from different speakers, bicycle bells ringing all around in the middle eight, and the guitar solo entry heralded by a sustained guitar note from each speaker in turn. There was some minor brashness on that track, but not others — *Spread Your Wings* emerged more on the





# audio-visual

smart AV receiver



## HDMI inputs

There are seven HDMI inputs on the RX-A2A, all 4K/60 capable, along with a single HDMI output which is eARC capable, so able to play both stereo and surround from a connected TV which supports it.

## Other inputs

There is one optical digital, one coaxial digital, three line-level and one moving-magnet phono input, along with built-in FM and DAB+ tuners, and the significant streaming abilities of Yamaha's MusicCast streaming and multiroom platform.

soft side — so that was just the Yamaha being true to the source material.

We moved to the *Void* DVD by The Flaming Lips, which we suspect was mixed 'under the influence', given the track *Fight Club* has the drums constantly circulating around the full set of speakers, as if someone were grinding a mixing joystick round and round while howling with laughter. It's an impressive test of steerage, if disorientating on the receiving end, but the Yamaha had no trouble serving this, and the channel-hopping delight of *Yoshimi Battles the Pink Robots* also, even at something close to top volume. But despite our relatively large rear speakers, the system couldn't quite resolve the still harder challenge of *Do You Realise*, where it's the bass guitar's turn to get the joystick treatment. Since we were using a single subwoofer (and Yamaha's sub outputs can't anyway be differentiated to front/rear or left/right), this just sounded a bit odd.

Our music surround listening continued for many sessions — Genesis's *The Video Show* gave the opportunity to compare 5.1 Dolby and DTS mixes. Dolby won for level, but DTS for quality, the superior separation revealing previously unheard details like locationally-separated doubletracking on *Abacab*. The Yamaha made the surround mix of the 1999 re-recording of *The Carpet Crawlers* meltingly immersive.

Note that if you have height speakers attached, the Aventure defaults to spreading a 5.1 soundtrack into them, often highly effective with movie soundtracks, but with music we found the sound much tighter and more impactful by hitting the 'Straight' button on the remote, so that what comes in is precisely what goes out. 'Pure Direct' did even better.

Then we moved up to true Atmos for Roger Waters' 2015 concert film of *The Wall*, where the height is used primarily for atmosphere, the Yamahas delivering both full immersion and such a thunderous level of distortion-free performance that we ended up watching the whole movie. A warning, though — good surround music through a competent delivery like this can make stereo seem rather dull afterwards!

We moved to movies, and the Atmos soundtrack of the 4K remastered *Hobbit* movies. The soundtrack during the early scenes of Erebor under the Lonely Mountain was a wonder of tiny detail, the tapping picks of dwarves tinkling around and above as the camera swings through the canyons of gold, the Yamaha effectively steering the sound, thrumming or slamming the bass as required, and the arrival of Smaug giving the movie's first full workout for a system. The Yamaha seemed unphased by the mayhem, and kept Ian Holm's narration crisp and clear through the centre channel.

There was extraordinary depth to that opening voiceover in *Mad Max Fury Road*, playing in Atmos off the 4K Blu-ray. It's a wild soundtrack that rarely lets up, and one to test not only the resolving power of your system but also the sound isolation of your movie room! Despite having heard this on far larger systems in larger rooms, we've never heard such a tight combination of clarity and power as on the smaller set-up we were using with the RX-A2A, especially with the Krix Seismix sub living up to its name.

Of course surround is not just for thrills. There is much subtle use of musical

surround in *2001: A Space Odyssey*, so that while the ape-men in the Dawn of Man sequence may not visually be up to the modern FX realism of Andy Serkis *et al*, the goosebumps rose nevertheless as the strange and ethereal choir voices crescendoed through five genuine Yamaha channels and two 'upscaled' ones. (Here there was no dialogue to encourage us back to the tightness of Pure Direct.) So the Yamaha proved itself with subtlety as well as grunt.

## Stereo music

Between major sessions, we had also been using the Yamaha in stereo — for music from our turntable and from our computer, and from a stick of test files inserted into the front USB-A socket. The RX-A2A is compatible with lossless files in WAV and AIFF up to 32-bit/384kHz, FLAC to 24-bit/384kHz, ALAC to 24-bit/96kHz, and DSD to 11.2MHz (quad-DSD), as well as lossy MP3, AAC and WMA. We had no issues with the performance of the phono stage with our turntable, though were immediately aware that overall the straight stereo performance of music had taken a hit over what we normally enjoy from our lower-power but rather more commanding (and priced roughly the same as the whole receiver) Class-AB power amps; nor did it have quite the warmth, flow and 'Natural Sound' we've enjoyed from Yamaha's own hi-fi amplifiers in the past.

But things were again notably improved for stereo music by invoking the 'Straight' button, which ensures no playful extras are being added to the processing (such as all-channel stereo, or the frightening Compressed Music



Enhancer). Better still, yet again, is 'Pure Direct', which defeats all such processing and also other things that might affect sound, including even the front-panel display. But our preferred final solution was to use the available versatility of the socketry, wiring Yamaha's left-right pre-out sockets into our power amps so we could continue to use them for those crucial left and right channels.

## MusicCast

Do not underestimate the inclusion of the MusicCast platform here. It enables direct app-based control of the receiver inputs, volume, processing and access to the many worlds of streaming **music** — Spotify Connect (paid or free), Tidal (but not MQA high-res), Deezer, Amazon Music and also internet radio (with a useful prestocked folder of high quality stations). Unlike some rival platforms MusicCast is properly regionalised, so it doesn't show services not available here; it hasn't yet been updated to include recent Australian arrival Qobuz (but it should soon appear, we're told, and able to stream Qobuz's native FLAC up to 24-bit/192kHz). There's also network streaming from shared folders using the 'Server' function.

Anything else you can stream via AirPlay 2 from a Mac or iOS device, or via Bluetooth from Android, though there is no aptX codec included here, only SBC and AAC. There is also Bluetooth out, so you could send the receiver's sound to a pair of headphones or even a nearby Bluetooth speaker, noting however that the only codec for this is the base-level SBC.

And in addition to the sources provided by MusicCast, you have DAB+ and FM tuners, with string antennas supplied — though for FM we'd recommend using an external aerial for best results, depending on your local strength of reception.

MusicCast also provides multi-room operation, linking 'Rooms' together. We streamed vinyl from the Music Room to a pair of Yamaha MusicCast speakers in the bedroom, and rather more easily than the wiring and speaker disabling of Zone 2 operation would require.

If you so wish, you can experiment with what is possible via voice control — Alexa, Google Assistant or, through AirPlay operation, Siri. This kept failing for us at the 'register device information' stage, perhaps because our review unit came to us before official release. We rarely find voice control useful or comprehensive for hi-fi equipment anyway unless, like some soundbars, TVs and wireless speakers, they actually have Alexa or Chromecast built in.

## Scenes

With the new fascia design, Yamaha's Scenes have moved even further to the forefront of operation, with four instant-access buttons on the fascia, and eight on the remote control. These go far beyond simple presets (which are also available), able to store the input, the preferred sound and surround processing, the speaker set-up, and more. They even turn the receiver on if it's off, so that we soon found ourselves starting sessions by simply pressing either Scene 1, which we configured for movie viewing with our full surround set-up in play, or Scene 3, set up for stereo music listening.

Except... here we come to the conversion in our age-old listening prejudices. Yamaha has been offering 'sound fields' on its receivers since at least 1985, when the DSP-1 offered the ability to expand stereo signals into surround sound, or to process existing surround through a variety of acoustic environments such as 'concert hall', 'stadium' and so on. These were often based on meticulous real-world acoustic measurements, but we have spent the last 30 years pooh-poohing the entire concept as destructive and unnecessary — why put music already recorded within one acoustic environment through a second acoustic?

Decades on, Yamaha is still featuring its sound fields prominently here — indeed on the remote control the 'program' buttons that shuttle through the many sound fields sit right alongside the main volume buttons.

And we found ourselves rather enjoying them, for music at least. They are highly material-dependent — one track would sound great expanded by the 'Hall in Vienna' settings, while for another this would create tizzy delay in the rear speakers and a disorientating effect overall. We found the 'Standard' setting, purportedly for surround signals, to work nicely with a lot of music, and certainly less destructive to vocals than the 'Neo.6 Music' surround field available under the 'Sur. Decode' button. We ended up allocating a Scene setting to a couple of different fields, so we could experiment more easily.

So we must reverse previous instructions to avoid sound fields, and suggest instead that you play with them. Note also that the 'all-channel stereo' is likely to start up without being invoked, and you should be ready with that 'Pure Direct' button if you don't like the result. By the end of our month-long review period, we were using the Pure Direct button for all surround music and movies. It always clarified, and all times it made the whole sound pop into focus.



## Remote

A quick mention of the remote control, since it softens still further the design from last year's Aventure, which itself looked so very much less frightening than the overwhelming button-laden Yamaha wands of yore. While the blackness of design necessitates some pretty small legends to read around the minor buttons, it's far more intuitive now, led clearly by the main volume controls and quick Scene access (and those sound-field programs), so that even a visitor to your home might have a chance of working out how to hear the TV. Plus you've always got the MusicCast app available, which offers a lot of options, especially via a spacious tablet screen.

## Conclusion

This first taste of the new Aventure range proved a great success. The new fascia design and remote control soften its physical presence; the codec support for both music and movie soundtracks is comprehensive up to Atmos and DTS:X, short only of esoterica like Auro-3D (available on the top two new Aventure models) or the inexplicable furfy of IMAX Enhanced. It provides its own sources via DAB+ and FM tuners, plus all the streaming abilities of MusicCast.

Best of all the Aventure RX-A2A proved remarkably easy to set up and calibrate once the fiddly cable-attaching session is complete, then delivering enjoyable and upgradeable sound for music, and that immersive sound-field for seven-channel movie listening with enough **power to satisfyingly** drive speakers of mid to high sensitivity in all but the largest of cinema rooms.

And if you do need more, then there are three higher Aventure 10 models on the way, which will shortly be waiting to serve. +

## SPECS

### Yamaha Aventure RX-A2A

\$1599

**Power:** 7 x 100 watts (8 ohms, 20-20,000Hz, 0.06% THD, two channels driven)

**Inputs:** 7 x HDMI, 1 x HDMI eARC, 3 x analogue line-level, 1 x phono, 1 x optical digital, 1 x coaxial digital, 1 x USB, Ethernet, Wi-Fi, Bluetooth (SBC, AAC), DAB+/FM antenna, AirPlay 2, MusicCast

**Outputs:** 1 x HDMI, L/R pre-out, 2 x subwoofer out, 9 pairs speaker binding posts (7 channels), 1 x 6.5mm headphone, Bluetooth (SBC)

**Audio formats:** Dolby Atmos, DTS:X, Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS-HD Master Audio, DTS-HD high Resolution, DTS Express, DTS, DSD to 11.2MHz, PCM to 32-bit/384kHz

**Zone:** 1 additional, assignable amplifiers

**Other:** YPAO in, Remote in, remote out, trigger out

**Dimensions (whd):** 435 x 171 x 372

**Weight:** 10.2kg

**Contact:** Yamaha Music Australia

**Telephone:** 1800 805 413

**Web:** au.yamaha.com



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# Game on

## BenQ TK700Sti

4K projector

Grab your SMG and prepare for action – BenQ's TK700Sti is a next-gen gaming-optimised 4K DLP projector.

It's game on with BenQ's very latest projector, which comes with special game modes to make the most of gaming in general and the new Xbox and PlayStation consoles in particular. It could also be described as one step ahead, as it is so freshly minted that it represents a full production cycle forward of other key models in BenQ's range. So let's see what's new, why it's especially smart, and how it allows gamers — and entertainment lovers too — to get that step ahead.

### Equipment

BenQ has taken to expanding on its range of pixel-flipping Ultra High Definition projection by means of specialisation. Most of our readers likely have a focus on home entertainment, where

BenQ has offered the CinePrime W2700, and above it the W5700 and CinePro X1220H. But only last issue we encountered the TK800M, a 4K projector with special facilities for sports fans, its bright 3000 lumens output paired with dedicated modes for football and sports.

And here we have the TK700STi, labelled as ideal for gamers, enabling them to expand their gameplay beyond a monitor or TV to a genuinely bigscreen experience.

The problem with doing this has traditionally been the amount of time projectors take to process an image. A small delay doesn't matter when watching a movie, assuming the soundtrack is kept in sync. But delays can mean death to a gamer, quite literally in a first-person shooter, or an action game, or a sports game where timing of a racket swing or the leap to save a penalty shootout is critical. Gamers purchase low-lag monitors

### SUMMARY

#### BenQ TK700STi

Price: \$2599

- + Bright and colourful projection
- + Just 16.67ms lag with 4K/60
- + Genuine UHD delivery
- + Android smart stick built in
- Surround sound not possible from Android stick or direct -connected gaming
- Sub-optimal Netflix option
- Judder on some 50Hz material



and check TV specs to give their game an edge against competitors, as well as against their console or computer.

So here BenQ, which has plenty of experience in producing such low-lag gaming monitors, proclaims the TK700STi as “the world’s first 4K HDR low input lag gaming projector”. And the good news for both gamers and their potentially non-gaming family and friends is that there seems to have been no great penalty taken in the area of TV and movie performance to achieve such gaming-friendly status.

The TK700STi arrives in a simple suitcase-style box, and once unpackaged it is usefully compact — 31cm wide and just 3.1kg in weight, looking similar to any number of recent BenQ projectors, though a little less curved than the CinePrimes, a little more businesslike.

It promises 3000 lumens brightness, which is plenty for home cinema use and, depending on your screen size, enough to overcome a little ambient light in the environment. There are two HDMI inputs, both 4K-compatible, an RS-232 input and one USB-A slot (for service and power only), plus another HDMI input in a closed-off compartment at the back where you install the supplied QS01 HDMI Android TV dongle. Once networked this dongle brings near-endless apps from Google’s Android TV platform, ready to play direct from the projector under control of the rather nice remote control provided. This upgrades the TK700STi to smart projector status, including the ability to cast from a Chrome browser straight to the stick.

The headline of gaming lag time requires a little elucidation. The main promoted lag time is 16.67 milliseconds, which is made available by selecting the projector’s ‘Game’ modes,

which invoke the projector’s ‘Fast’ mode to deliver that 16.67ms lag for 60Hz content regardless of resolution. That’s very impressive for a projector — 16.67ms is the same figure achieved by BenQ’s 1080-resolution gaming projectors, yet here it’s available also with the far larger frames of Ultra High Definition.

Gamers looking for still lower lag should note that the TK700STi can accept 1080p at 120Hz, which would then halve the lag to a surely imperceptible 8.3ms. Both the PlayStation 5 and Xbox One S or X can output at 120Hz frame rates, as can PCs. The best gaming-optimised TVs can go slightly lower in lag still, and gaming monitors even further down, but then you’d be losing the joy of wall-sized gaming from a projector. The TK700STi can even accept 1080p at 240Hz, should PC gamers have a graphics card so capable, and this would drop the BenQ’s lag to just 4ms.

Within the three Game modes that make use of the projector’s Fast mode, there is differentiation between key genres of gaming. So there’s an FPS mode for first-person shooter games, which enhances detail in order to reveal enemies hidden in shadows, and there’s an RPG (role-playing) mode which delivers BenQ’s “as directors intended” CinematicColor, in this case extending to 96% of the Rec.709 colour gamut available from HDTV and Blu-ray. Thirdly there’s SPG (for sports games), which provides “true colours” for flesh-tones. The company also makes claims for different sound priorities with each Game mode, to which we’ll return later.

Beyond gaming, or for games which don’t require rapid reactions, there are plenty of other viewing modes on offer, including HDR10 and HDR Game modes. HDR10 mode was engaged automatically whenever we fed it HDR material from UHD Blu-ray.

There’s still a 3D mode available here, should you have 3D movies and a player capable of delivering them. You’ll need to budget for glasses, as these are optional extras.

The fact that BenQ notes the possibility of Full-HD input at 240Hz is interesting. This is a 4K projector which uses Texas Instruments’ DLP technology, a micromirror-flipping solution which has a 1920 × 1080 array of micromirrors which address the screen four times per frame to achieve UHD (consumer 4K) resolution of 3840 × 2160. Colours are handled by an eight-segment spinning colour wheel changing the source light from the DMD into red, green, blue and white (and repeat). We guessed that the 240Hz input capability might indicate that this projector uses the new DLP471TE digital micromirror device from TI, rather than the DLP470TE we’ve seen in all such projectors reviewed so far, and BenQ Australia confirmed this, another indication that this new projector is a full design cycle ahead of models such as the W2700; this new DMD was released only in September 2020. That puts the projection technology here 18 months ahead of those using the older DMD.

### Performance

Though small enough to bring out on spec and re-situate when required, the TK700STi will benefit from a permanent site, whether ceiling or benched, able to gain from more carefully calculated positioning and ease of permanent cabling, both for other sources plugged in and potentially for audio signals coming out.

Indeed positioning is all the more critical for gamers wishing to minimise their lag. While you can correct off-axis screen geometry using keystone correction (this



#### Inputs & outputs

There are two HDMI inputs, both 4K compatible, plus an RS-232 computer connection. The USB is for power and

servicing only, not file playback. For audio out there is analogue stereo minijack, and potentially ARC on the second HDMI socket, again stereo only.

#### Hideaway Android stick

The Android TV stick fits into a hidden third HDMI input and is powered from the nearby USB socket. Once the cover is on, all this is hidden (inset pic).



can be cleverly automatic, indeed, for vertical keystone adjustment), this has a penalty beyond the usual compromise in resolution it requires. “When using Fast Mode,” says the manual, “please set Keystone and Overscan to 0 in order to minimize response time.”

These things require pre-processing of every frame, and that’ll slow you down.

Happily it’s not hard to set up the TK700STi accurately, especially with the built-in test pattern that’s available. Get your surface level — or use the adjustable feet if need be — and have your projector perfectly perpendicular to the screen. If the projector is benched, then the bottom of the screen will begin a few centimetres above projector height (12.5cm for a 100-inch screen); if ceiling-mounted the screen top will be similarly offset a few centimetres below the projector height. And the TK700STi is impressively short-throw, so that for our 100-inch screen its 1.2× zoom lever allowed positioning with the projector’s front edge between 199cm and 239cm from the screen. The manual indicates the projector as being optimised for screen sizes from 60 inches up to an impressive 200 inches.

Focus uses the larger of the two manual adjustment rings above the lens, and is an easy set-and-forget procedure.

We started our watching by perusing the entertainment options now built in thanks to that Android stick neatly hidden in the back of the projector. This allows access to the Google play app store with its near-endless entertainment apps available to install — Disney+, Prime, Stan, Binge, Kanopy (no BritBox), and all five catch-up apps are included.

So that’s a lot of content available right there on the projector, and it’s all controlled effectively from the remote control (though the projector menus themselves proved a bit sticky, often requiring a wait of a few seconds each time we entered a sub-menu).

The one glaring omission on the Android dongle is Netflix, though to its credit BenQ is very upfront about this, using large type on its website rather than hiding it away in smallprint. “Netflix only supports specific authorized devices and is not natively available on BenQ smart home projectors”, it says, before going on to suggest you call up Netflix on a Chrome browser and then cast it to the Android dongle. This puts a few limitations on it, and brings your home network doubly into play. We tried this from both a Chromebook and a MacBook Pro and it worked pretty well, with regular little glitches but no obvious image degradation other than a presumed 1080p maximum.

But really, there are so many ways to watch Netflix these days! Some other plugged-in component — your gaming console, PC or Blu-ray player — may well deliver full-quality Netflix streaming easily enough anyway.

Certainly we were enjoying the image performance of the TK700STi from its native

“Colours were a notable strength, even straight from the box, with vibrant greens and reds, a zingy delivery of the difficult violet of jacaranda trees...”

apps. Colours were a notable strength, even straight from the box, with vibrant greens and reds, a zingy delivery of the difficult violet of jacaranda trees, yet also maintaining accurate and realistic skin tones. Blacks won’t match those of a TV, especially a front-emissive one, and are of course highly affected by any light in the room, but they proved deep enough during night-time viewing to make the BenQ’s colours pop.

From Disney+ the swathes of dark background on the stage of *Hamilton* were nicely graduated to reveal details of costume patterns even of those waiting in darkened wings. From 4K Blu-ray the value of DLP’s genuine 4K delivery was made evident on the fine recent 4K remasters of Peter Jackson’s *The Lord of the Rings*, where the extraordinary detail and textures of costumes and props alike now shine as never before. While we had neither an Xbox One or PS5 console to hand, we confirmed the projector’s ability to accept 1080/120Hz from a PC, and ran a little blistering *Battlefield 3* at this revealing rate.

Not a bad word on the images themselves then, but we were also watching carefully for motion judder. Texas Instruments’ 0.47-inch DLP chip accepts all manner of input, but outputs only at 60 frames per second (or, as we’ve seen with gaming, 120Hz and 240Hz). But not at 50 frames per second, nor at 24 frames per second. Australia is a 50Hz country; our free-to-air is 50Hz, much of our catch-up is 50Hz (though some is still 25Hz). Even in a 60Hz market (e.g. Texas, Taiwan), nearly every movie runs at 24 frames per second, and if displayed at 60Hz will have uneven frame distribution, leading to potential judder. Conversion from 50 to 60 frames per second can be even more severe.

Motion processing can attempt to tame this, but this particular BenQ projector doesn’t use any, with no menus for its variation. Normally we’d say that might not be a bad thing, as recent years have seen directors and film stars begging consumers to turn off their motion processing if they want to experience a film as the director intended (the ‘Film-maker’ and similar modes now found on TVs basically do just that), and we often prefer it that way. But no motion processing combined with 60Hz-only output leaves you prey to judder.

Yet we saw very little of it. It was not to be expected when we played the 2017 *Twin Peaks* season on Blu-ray, as this arrived

at 1080/60Hz, and the pans over pine trees were smooth, even the wildly spiralling zigzag carpet patterns were held in check. We had already been watching plenty of 24Hz movies, but paid close attention to the 4K Blu-ray remaster of *The Return of the King*, with its wide sweeps of New Zealand landscapes and virtually-added Edoras and Gondor cities, which should have shown up 24-to-60Hz conversion — but smoothly they ran, with nothing to distract. We loaded BBC Blu-ray documentaries in 1080p/50, and whether jungle pans from David Attenborough or magnificent sweeps across India by Michael Wood, it was only on an occasional zoom or vertical pan that any judder was visible, and given that even the rolling credits ran smoothly up the screen, what we saw was likely cinematographic in origin. This smooth performance remained the case even when we put the projector into Game modes.

The only place judder was prevalent was 50Hz material viewed from the Android stick — SBS or ABC catch-up shows showed strong evidence of the 50-to-60Hz stuttering we’d been expecting. But then we suspect the Android stick itself is limited to 60Hz, so we should blame that, because if could pass the native stream to the BenQ, the projector might be able to fix it up, as it had other sources.

On the whole, then, somehow the TK700STi overcame our fears of judder. We asked BenQ’s opinion on this, and they replied “It is just the scaler that’s doing the job.”

Well, nice job!

Finally we ran Stephen Dawson’s 4K test card, which displays individual pixel lines of colour separated by individual lines of white. This showed that the DLP technology was successfully delivering genuine Ultra High Definition resolution, with the individual pixel lines discernable, if slightly smudged into the gaps. This is just as we’ve seen before from DLP470TE-based devices, so the new DMD chip would seem to match performance in that regard, if not actually improving on it.

## Audio

Audio, meanwhile, requires a little thought, especially when using the Android dongle.

There are three ways to listen. You can use the BenQ’s built-in speaker, just the one, in mono, firing from the left side, with 5W of unspecified power. We really couldn’t recommend this for entertainment; it’s simply not entertaining. Bass drops off rapidly below 110Hz, which rather takes the impact out of



movie soundtracks. There’s limited volume available, and the audio quality is simply not a match for the huge and beautiful visuals. So we’d say to keep the internal speaker only for emergencies and ad hoc use.

Your second option for high-quality sound is the analogue minijack audio output. That means running an additional cable back to your sound system, and this will be stereo only, of course. We also found the minijack output to be noisy, emitting strange swooshy bursts of noise when we used the remote to move around the Android interface, though such noise was quickly drowned out once a soundtrack was running. The sound itself, played through a high-quality system, was perfectly serviceable, though congesting at times of high density. This output is also fixed, so can’t be controlled from the BenQ’s volume control, though you’d likely have a separate control for whatever you’ve plugged its output into. You can also just about use it for headphones, though their impedance will entirely govern volume level unless you have active headphones where the active circuit can be used in cabled mode, as is the case with, say, the Yamaha wireless/cabled noise-cancellers reviewed last issue.

The third option for audio is to use the HDMI 2 input, which is ARC-enabled, so in theory the projector should send the audio from other inputs down an HDMI 2-connected cable to an external receiver or soundbar. But neither a soundbar nor a receiver with which we tried this were able to get sound from the Android stick this way, though BenQ tells us this should be possible. We could, however, do so from the HDMI 1 input, which is where you’d plug in your games console. But this too is limited to stereo only. BenQ confirmed there is no 5.1 passthrough available here.

So if you’re after the low latency of this projector for gaming, you cannot also enjoy surround sound. Nor can you enjoy surround of any kind for entertainment played from the Android stick. The more conventional connection might be to plug your games console into an AV receiver, then out again to the projector, but then latency will suffer, that extra HDMI chain introducing additional delay. While many people don’t care about surround, those with bigscreen projectors are among those more likely to consider it, and gamers too — surround in gaming can give FPS in particular a great advantage. If you can hear accurately where that sniper fire is coming from, especially if it’s behind you, this may save the day even more effectively than a couple fewer milliseconds of latency.

Indeed we noted that in its Games modes, BenQ mentions sound tweaking for



each option, with the FPS mode noted in the manual to “provide surrounding sound to hear the distant footsteps and gunshot and recognize their directions”. Since they’re not going to be tweaking the HDMI audio, we asked BenQ if this was some bold effort at pseudo-surround from the projector’s own, er, mono speaker?

BenQ’s Taiwan head office was kind enough to acknowledge the point, saying that they meant that the built-in speaker enhances the sound from the surroundings — sound from the environment (gunshots, footsteps and other ambient sounds) in which the character is present, and does not refer to actual surround sound. But it will most certainly not help you “recognise their directions”.

It’s hard not to conclude that if projector companies are going to start building video sources like Android TV into the projectors themselves, they need to pay increasing attention to audio, with a surround-capable digital output as a pre-requisite. HDMI eARC would allow Atmos 4K soundtracks to be extracted from UHD Blu-ray movies played on a PS5, as well as delivering gaming surround — the Xbox can run a number of games in Atmos, notably *Call Of Duty Black Ops: Cold War*. An optical fallback output would at least allow 5.1.

Talking of sound, the TK700Sti emits a constant but not overly distracting whirr; this is tempered significantly by switching to Eco mode, but then so is the brightness. You don’t notice the whirr once you’re playing something, though it carries on for a remarkably long time after you turn it off. Lamp life is quoted as 4000 hours in Normal mode, 8000 in SmartEco (which doesn’t dim things), 10,000 in Eco and 15,000 in LampSave mode.

Conclusion

The Android dongle here adds a swathe of built-in entertainment options, though audio playback from that is a challenge, and surround sound impossible. The TK700Sti projector itself, meanwhile, delivers what BenQ does best — rich colours, genuine pixel-shifted UHD resolution and easy set-up — here enhanced for gamers with low-latency delivery for a stupendously ‘wow’ bigscreen delivery of 4K gaming. +

SPECS	
BenQ TK700Sti	\$2599
<b>Resolution:</b> 3840 x 2160 pixels	
<b>Projection technology:</b> 1920 x 1080 one-chip Digital Micromirror Device (DLP471TE)	
<b>Aspect ratio:</b> 16:9	
<b>Lamp:</b> 240 watts	
<b>Lamp life:</b> Normal 4000 hrs, SmartEco 8000 hrs, Economic 10,000 hrs, LampSave 15,000 hrs	
<b>Colour gamut:</b> 96% Rec.709	
<b>Brightness:</b> 3000 lumens	
<b>Latency:</b> 4K 16.67ms@60Hz, 1080p: 16.67ms@60Hz; 8.33ms@120Hz	
<b>Inputs:</b> 2 x HDMI 2.0b, QS01 HDMI Android dongle	
<b>Audio outputs:</b> stereo audio minijack, HDMI ARC (on HDMI 2 input), built-in mono speaker with 5W	
<b>Other:</b> HDR10/HLG, RS-232C control, 1 x USB-A (1.5A power only), 2 x IR	
<b>Dimensions (whd):</b> 312 x 110 x 246mm	
<b>Weight:</b> 3.1kg	
<b>Warranty:</b> Two years (Lamp: the earlier of one year or 750 hours use)	
<b>Contact:</b> BenQ Australia	
<b>Telephone:</b> 1300 130 336	
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Considering a home extension? Why not make a Statement? We asked Wavetrain Cinemas' David Moseley to explain some of the secrets behind this stunning home cinema with 165-inch screen.

# Entertainment extension

by **Wavetrain Cinemas**

If you're going to build an extension to your home, what better use for it than a reference-level home cinema! Wavetrain Cinemas was engaged to design this home's new cinema space from the ground up, as an extension to the existing house.

"The client was after a cinema that could match commercial cinema performance," says Wavetrain's David Moseley. "And from the very start we knew we would exceed that goal by correctly designing all elements of the cinema." And according to the lucky owner of this eight-seat theatre, David Moseley's confidence was not misplaced.

"Wavetrain far exceeded what I thought would be possible in a home cinema environment," the owner tells *Sound+Image*. "Initially I thought it was about 'coming as close as possible' to the commercial cinema experience. How wrong we were! This project flipped the tables — now the commercial cinema experience falls far short."

## Making a Statement

While Wavetrain describes itself as "a complete turnkey cinema company", able to follow any preference for any space, it can also help ease the potentially overwhelming task of going from empty space to working home cinema by having a number of pre-designed home cinema options which can be tailored to the owner's particular requirements. Step one,





“It’s the audio that truly blows you away — so much power, so clean. My wife almost cried hearing this for the first time.”

## Audio configuration

There are, in all, 17 speakers in this home cinema, although David Moseley accurately describes the system as operating in 7.1.4. So that’s four ceiling speakers plus seven channels on the floor, though these seven are delivered from nine speaker positions, with L, C, R at the front, plus six surround speakers, with two speakers on each side to handle the side surround signal.

“Since we were using the 13.1-channel Anthem audio processor, we split the audio signal on the side channels to create a wider soundfield to the seating rows,” explains David. “One speaker can be too easy to localise, and can create a large gap between the front and rear speakers.”

Similarly the ‘.1’ in the 7.1.4 doesn’t indicate only a single subwoofer — this system uses four in total, with two 15-inch Theory Audio subwoofers at the front and two 12-inch digital active subwoofers from new brand Elementi (see overleaf) bringing up the rear.

“Four subwoofers were used to ensure a smooth frequency response across all seats,” notes David. “So some people might mistakenly call this a 7.4.4 cinema, or even 9.4.4 given the split side surround speakers. But the subwoofers in the system are used as a single channel for low frequency extension. They are time-aligned and levelled to produce

the best response before room tuning. Only once this is done correctly can the final system be calibrated. It is possible to use multiple subs to provide bass steering [differentiating the bass signals to match their position in the room] when the cinema has been engineered to eliminate standing waves — and that is something we do in our higher-end projects. But the goal here was to deliver tight, even bass. So the true description of the system here is 7.1.4, despite the fact we are utilising 17 speakers and subs in all.”

Wavetrain was able to meet the budget of the client by using, along with the Anthem processor, a combination of Theory, Triad and Elementi speakers and amplification (see the equipment list).

## Video system

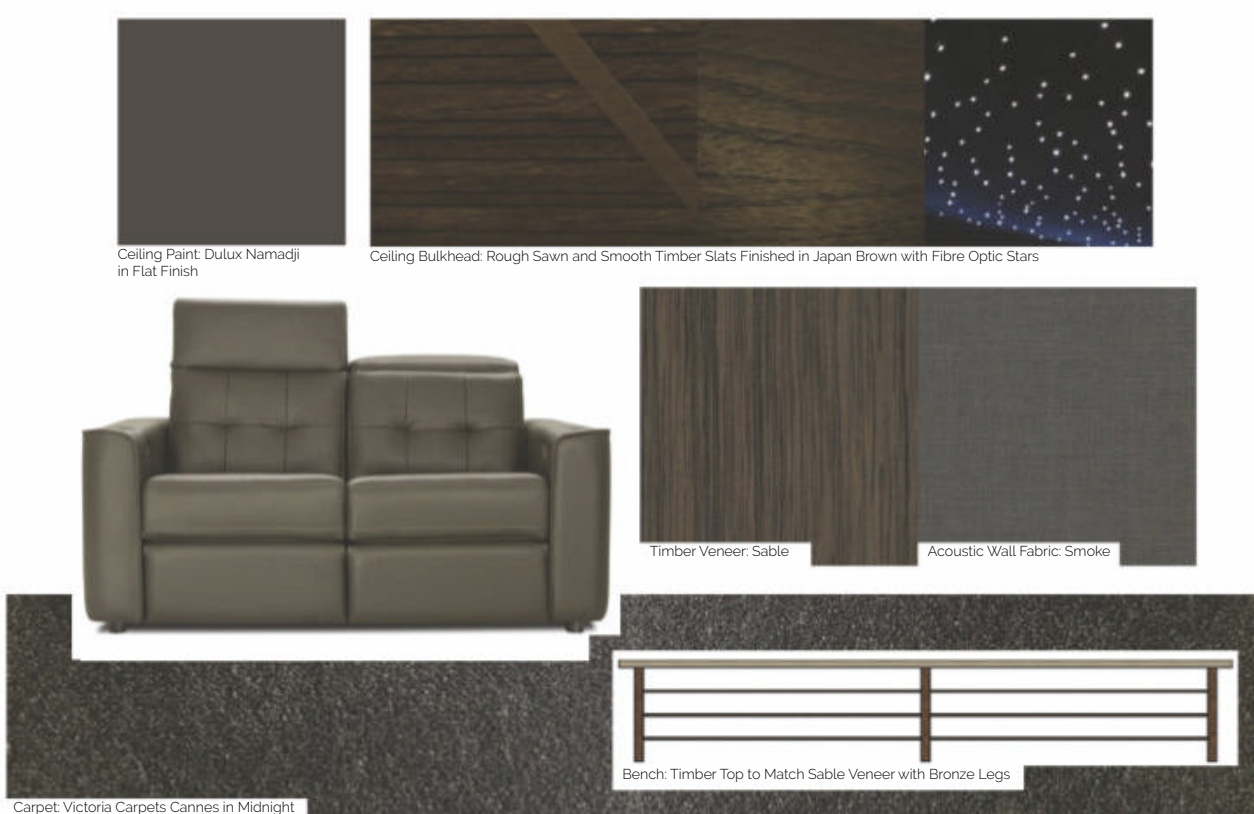
The video system, meanwhile, includes a 165-inch Severtson CinemaScope projection screen, illuminated by BenQ’s LK990, which uses Texas Instrument’s pixel-flipping DLP XPR technology to deliver UHD (4K) resolution with 6000 ANSI lumens light output.

“The video system was designed to achieve 100 nits of screen brightness, which we consider essential to achieve a true High Dynamic Range image in a cinema environment,” says David. “This is approximately double the screen brightness of a commercial

it says, is simply to make an appointment. Step two is to discuss your goals and experience Wavetrain’s demonstration rooms in Taren Point, Sydney, to experience what’s possible and get inspired. And step three sees Wavetrain then “handcraft a cinema that brings your vision to life”, producing architectural drawings, the mechanical and acoustic engineering, supplying the entire cinema fit-out, and then undertaking final audio/video calibration.

Wavetrain is also notably proud of its role in interior design. In this case, the clients had selected a cinema design from one of Wavetrain’s ‘Statement Cinemas’.

“These pre-designed cinemas mean we can concentrate on engineering the room, leaving the only real choices as carpet, fabric, timber and chair colours, which can be handled by our Interior Design team. In this case the clients wanted a clean-lined contemporary cinema design, and the twist in the design was the fibre-optic star ceiling.”



▲ MOOD BOARD: Wavetrain’s interior design brief, produced in consultation with the client, specifies the key colour palette and finishes for the project, including paint, timbers and fabrics.



cinema and of what is required for SDR content. It provides a clear distinction between SDR and HDR content.”

The screen is 2.35-to-1 ratio, but no anamorphic lens is used here. Instead anamorphic changes are made using the go-to secret weapon we are seeing now in so many high-end home cinema designs — a Lumagen Radiance Pro 4K video scaler and processor.

“The Lumagen can remap the video to any configuration,” explains David Moseley. “In this instance we are not using an anamorphic lens, but rather we project within the 2.35:1 frame and then display 16:9 as either an image within the frame, or the client has the option to use Lumagen’s Non-Linear Stretch option to project a 16:9 image in a 2.35:1 frame. All the colour mapping and HDR conversion is also handled by the Lumagen.”

To make the most of the UHD/4K capabilities, sources include Panasonic’s DMP-UB820 UHD Blu-ray player and a Nvidia Shield media player, along with connections for both PC gaming and a gaming console.

## Keeping it on the inside

Sound isolation was a key criterion for this client, as it’s something of which they currently enjoy too little, with a young family in an open-plan house. It was critical the cinema could be used without affecting the rest of the home.

“The entire system was designed to achieve 80dB of attenuation to match the noise floor of the Living Room adjacent,” says David, noting the use of a Kinetic RIM floating floor system, high-density plasterboard, Green Glue and plenty more to achieve the required result. Wavetrain also manufactured the custom sound isolation doors.

The result? “At full blast the cinema can barely be heard directly in the Living Room,” he confirms.

Careful design of the air-conditioning system is another signature of Wavetrain-designed projects, essential in this case not only to deliver a low noise floor for the audio, but to achieve that desired sound isolation.

“A single power point not sealed correctly will halve the sound isolation performance of a cinema room,” notes David. “So the large duct penetrations in a cinema for air-conditioning need to be attenuated to the same level of the whole cinema sound isolation system, otherwise the system falls over and the client has wasted their money.

“The other aspect of air-conditioning design is that many parts are manufactured in galvanised steel. That’s a quick way to end up with rattles in the system, which are near impossible to correct once hidden behind the walls and ceiling. Wavetrain Cinemas manufactures a range of AC products specifically for cinemas that are built into the structure to attenuate sound escaping the room, and to slow the air velocity to eliminate air turbulence and ensure that the system can never rattle.”

## Getting the sound right

Wavetrain had the advantage of being involved from the get-go with this extension design, so had a headstart in getting the original room proportions ideal for purpose.

“Then you place seats into positions where they share common issues, and you place the speakers and subwoofers to eliminate the worst problems in the room,” says David. “Acoustic treatment improves the imaging, to tighten voices that are then easy to understand, and takes the edge off the harshness of the room.”

David Moseley is a fount of knowledge on cinema acoustics, having presented training courses for other

# Enter Elementi...

This home cinema is the first we’ve seen in Sound+Image to feature a new range of speakers called Elementi. Designed specifically for home cinema use (though the largest of them could potentially service commercial applications), the Elementi brand includes ‘Fire’ and ‘Air’ speaker ranges, plus an ‘Earth’ range of subwoofers, and an upcoming ‘Water’ range of Atmos speakers. The ‘Fire’ range (pictured opposite) uses compression drivers for high frequency delivery, while the ‘Air’ models share the cabinet and mid-bass drivers from the Fire range but switch to a pleated diaphragm ‘tweeter’ along the lines of Oskar Hail’s air motion transformer.

## MOVING THE AMPLIFIERS

Aside from the merits of each individual speaker design, Elementi brings a significant shift in equipment layout in a home cinema, by removing the power amplification from the main equipment rack. This delivers the usual active speaker advantage in avoiding the need to run long speaker cables, where electrical properties can significantly change over the longer runs required around a cinema and potentially through walls. Elementi notes that ideally speakers should be located within three metres of their amplifier.

Although the Elementi speakers are described as digital active, the amplifiers are not internal; the amplifier components are kept separate but adjacent to the speakers they individually power. The amps are relatively shallow and modular units designed to mount vertically against the cinema walls, hidden behind fabric or in joinery. Audio signals can then be run over balanced analogue audio cables, or kept digital (via Dante audio-over-IP) right through the Elementi amplifiers’ floating 32-point DSP processing, digital crossovers, FIR filters (with correction in both the frequency and time domains), and high quality digital-to-analogue converters.

The actual power modules within these Elementi amplifiers are full bandwidth PWM modulation Class-D modules from Danish company Pascal, whose modules have gained a reputation for both reliability and high-level sonic performance. Elementi’s 500W and 1000W amplifier models feature passive cooling which ensures they are silent in the cinema. The 2200W active models feature ultra-silent fans and suit front wall placement to run Elementi Audio’s most powerful speakers and subwoofers.

“One big issue doing custom installation work is the amount of heat that’s in a rack,” notes Wavetrain’s David Moseley. “You need to deal with it properly for longevity of equipment, but a lot of dealers put the power amplifiers at the bottom, the preamp above, and source components at the top. It sounds a little bit logical that you might do it that way, but something like a Trinnov processor — which is a computer — actually generates a huge amount of heat right at the bottom of the unit. So if you put a Trinnov above power amplifiers then convection cooling simply doesn’t work, because the hottest thing is actually the Trinnov above them. Your power amplifiers run too hot and they’ll be in danger of falling over. So by removing the amplifiers from the rack, which is often a fair portion of what a rack might be, you get down to a situation where the equipment is only about 600mm to 1200mm in height, and there’s not a lot of heat in there.”

Having the amplifiers spread around the room has other benefits, including ease of servicing.

“If you’re using a digital active speaker design where the amplifier is in the back of the speaker, and if you custom-install that speaker behind a screen, typically you would have to install it from the front,” explains David. “Then if the speaker fails, you’ve got to take the screen out, and take the speaker out to get to the amplifier to work out the problem. It becomes a labour-intensive process to maintain a custom installation. Whereas if you have the amplifier mounted near the speakers, say under a screen where you can just pull off a panel and get to it, then you can work out if there’s an issue with that amplifier — is it working, is it on? You can get to it and unscrew it easily. The Elementi amplifiers are quite shallow; they take up only about 150mm in depth including cables. So we may have a frame at the front of the room behind which the amplifiers for the front speakers can fit, and we often



have an acoustically-transparent curtain in front of the rear speakers which has enough space to fit the amplifiers as well.

“So they can be put into the position where they can best serve up the end result, whether that be thermally, or delivering a clean electrical signal to the speaker, or whatever facet you look at. And being modular they can deliver the power required for the speakers based on the SPL requirements.”

It means changes in some of the usual ways of wiring a cinema, and thinking in quite a different way.

“Yes, and especially with audio-over-IP,” says David. “Dante is probably the most robust of the audio-over-IP systems, and by using Dante the installers are then just wiring up standard data cabling, not having to terminate balanced lines. Everything becomes far less expensive, the terminations become quick and easy — and in the process you’re eliminating D-A and A-D conversions and just doing conversion at the amplifier itself.”

## SPEAKERS WITH A PURPOSE

Elementi explains that the speakers themselves are also different partly because of how they have been designed for precise purposes within a home cinema. The Firefly, for example (pictured second from the right below) has an unusual waveguide with 120° horizontal dispersion and 40° degree vertical, and comes as standard with a bracket that can angle the speaker at 20° to the wall.

“So the speaker audio tracks the wall and then outward to 120 degrees,” notes Wavetrain’s David Moseley, who has already been involved in the design of a number of new home cinemas using the Elementi range. “That makes the Firefly perfect for front wides or surround channels, because the coverage is so wide, and means you can get much closer to the speaker because it’s not going to be such a point source in your ear. Yet it’s still high output — it can be used as a front LCR, where a very wide horizontal dispersion means the integration between the three front speakers is going to be seamless even for a big screen. Whereas with a narrow dispersion speaker behind a large screen you might have to add a couple more and do five across the front for a uniform sound field.”

Topping the Fire range is the Fire-Dragon, which Elementi tells us will hit reference levels at 25 metres, making it suited to rooms of any size, where other manufacturers would struggle, and even in commercial cinemas. Another full-on design is the Kola subwoofer (named after the deepest hole in the Earth), featuring single or dual 24-inch drivers delivering from 10 to 100Hz under 2200W of power.

And while compression drivers, as used in the Elementi Fire range, are not unusual in home cinema use, here the processing in the dedicated amplifiers makes a difference.

“These speakers employ FIR filters, which allow the speakers to be tuned accurately in the laboratory,” explains David Moseley. “Most compression driver systems are known to sound dynamic and detailed, but also harsh — vocals can sound like someone is speaking with a cone held to their mouth. Elementi has taken the best of what compression drivers have to offer and then tamed the sound by tuning not just frequency but phase. The result is a speaker that sounds powerful, clean, warm and effortless.”

Using digital crossovers prior to the amplification also ensures that if the bass drivers are being pushed hard, that strain does not show up in the tweeters to affect the quality of detail in the sound.

For more information on Elementi’s ranges visit: [www.elementiaudio.com](http://www.elementiaudio.com)

### ELEMENTI PHOENIX front LCR or surround

- Digital active 2-way with 2-channel 500W or 1000W external amplifier
- 25mm compression driver, 90°/40° dispersion waveguide
- Dual 6-inch drivers, neodymium magnets
- 730 x 270 x 150mm (hwd)

### ELEMENTI FIREFLY front LCR or surround

- Digital active 2-way with 2-channel 500W external amplifier
- 25mm compression driver, 120°/40° waveguide
- Dual 6-inch drivers, ferrite magnets
- 585 x 260 x 130mm (hwd)

### ELEMENTI FIREBIRD front LCR or surround

- Digital active 2-way with 2-channel 500W or 1000W external amplifier
- 25mm compression driver, 90°/40° dispersion waveguide
- Dual 6-inch drivers, neodymium magnets
- 662 x 270 x 120mm (hwd)

### ELEMENTI FIRE-DRAGON front LCR

- Digital active 3-way with 3-channel 2200W external amplifier
- 44mm + 3.5-inch compression drivers, 90°/40° dispersion waveguide
- Dual 12-inch drivers, neodymium magnets
- 1009 x 450 x 280mm (hwd)





# audio-visual

## home cinema installation

cinema designers and installers. We asked him to explain in a nutshell why room acoustics are so important.

“The speakers will take on the sound of whatever acoustical space they are put into,” he explains. “And if you don’t understand what I mean by that, try walking around your home from room to room with either you or someone else talking, and listen closely to how the sound of the voice changes. You become a different version of yourself depending on the size of the room and the acoustic treatment in the room — carpets, rugs, curtains, furniture and so on. In a cinema room, once you have the acoustic signature of a space correct, you will be able to play the system at incredibly high levels, with no ear fatigue.

“We always use a combination of MSR and custom Wavetrain treatments. In this room the ceiling, seating platform and the front corners of the cinema are all custom bass traps. The ceiling also contains a custom absorption system for the first reflection from the front speakers.”

David notes that if the room has been correctly designed and treated, final tuning becomes a relatively straightforward process.

“The speakers and subwoofers are positioned to eliminate standing waves,” he notes, “and then we time, level and phase align everything to ensure the best result, and finally tune the cinema. Tuning a cinema is the last step and should be a fine tuning of the system, not a fix for all the unresolved problems in a room. Good rooms and correctly-engineered systems produce great results, and tuning the room is just the icing on the cake.”

And where tweaks are required, he recommends downward adjustments, not upward.

“If the room has been done correctly, the final tuning of the system mainly comprises cutting some bass power in the room, rather than boosting the amplified signal,” he explains. “It’s an easy thing to forget that a 3dB boost requires twice the amplifier power, and that the increased driver excursion will introduce distortions.”

### Motion pictures

There’s an extra dimension hidden in this cinema, and that’s D-BOX, the system that moves your seat in time with the movie, using carefully-designed cues created by the Canadian-based D-BOX team. You can experience this for yourself at public cinemas in Sydney or Melbourne, and Wavetrain’s demonstration rooms convinced the client that it’s an experience worth having, telling us that D-BOX was the “icing on the cake, stepping up the home cinema experience to the next level of immersion.”

Not surprisingly, as Wavetrain is the Australian distributor for D-BOX motion seating, David Moseley agrees.



“D-BOX is, in my opinion and that of our clients, an essential part of the cinema experience; it adds something tangible that cannot be experienced any other way,” he says. “Around 80% of all Wavetrain Cinema projects implement it.”

In this case D-BOX-ready seating was used on the whole rear row, as something which could be easily upgraded later once funds allowed.

“But at the end of the project,” notes David, “the client asked us to secretly add one actuator set in the centre loveseat, without telling his wife — a surprise! They are now looking to add more, to stop the fighting over who sits in the loveseat...”

Since completing the cinema, Wavetrain has been further engaged to design a drinks bar outside the cinema, which will also act as a butler’s pantry for the home’s new kitchen and living room areas, in which Wavetrain will also be involved. Part of the new expanded brief is to address the sound issues in the whole home, to enhance the way that the clients live. It’s something well worth remembering — that acoustic treatment is not just for music and movie rooms. The owners here notably describe their home cinema as being “a perfect space to relax, unwind and celebrate the hard work put into its inception.”

“Watching everything in 4K resolution and vibrant colour is tremendously rewarding,” they tell us. “But it’s the audio that truly blows you away — so much power, so clean. My wife almost cried, hearing this for the first time.” +

## EQUIPMENT & CONTACTS

### EQUIPMENT

**Panasonic** DMP-UB820 UHD Blu-ray player  
**Nvidia** Shield TV Pro streaming media player  
Gaming PC prewired for addition  
Gaming console prewired for addition  
**BenQ** LK990 4K HDR projector  
**Severtson** 165-inch CinemaScope projection screen  
**Lumagen** Radiance Pro 4242 4K video processor  
**Anthem** AVM-60 11.2-channel AV processor  
**Elementi Phoenix** speakers x 3 (LCR)  
**Elementi Tungsten** amplifiers (2 x 1000W) x 3  
**Elementi Basalt** 12-inch subwoofers x 2 (rear)  
**Elementi Tungsten** amplifiers (2 x 1000W) x 3  
**Theory Audio** SUB15 subwoofers x 2 (front)  
**Theory Audio** SB-25 loudspeaker x 6 (surround)  
**Theory Audio** ALC-1809 9-channel power amplifier (for front subs & surrounds)  
**Triad** Bronze 8 LCR in-ceiling speakers x 4 (height)  
**Triad** PAMP1-200 power amplifier x 2 (height)  
**Sanus** 36RU AV rack  
**Isotek** EVO3 Corvus 9-outlet filter power board  
**IsoTek** EVO3 Mini Mira 2-way AV power conditioner  
**MSR Acoustics** diffusers & other treatment (see article)  
**RTI** XP-6s control processor  
**RTI** XP RTiPanel iPad software  
**Lutron** lighting control  
**Wavetrain** seating (2 x Loveseats, 4 x armchairs)  
**D-BOX** haptic technology on 1 Loveseat; back row all pre-wired for D-BOX  
**PHOTOGRAPHY:** Holly Muldrock

### DESIGN & INSTALLATION

#### Wavetrain Cinemas

**Telephone:** 02 9526 5497

**Email:** projects@wavetrain.com.au

**Web:** www.wavetrain.com.au





## JBL's Revolutionary HDI Series.

Designed and engineered in JBL's world-famous acoustic engineering facility in Northridge, California. Drawing upon the heritage of the JBL® brand, JBL Synthesis® systems combine the most advanced signal processors, equalizers, amplifiers and loudspeakers to create the most realistic listening experience possible in rooms of any size.

### HDI WAVEGUIDE

HDI woofers take advantage of core JBL engineering techniques to ensure very high output with low distortion. The long-throw voice coil in conjunction with the symmetrical field motor design, flux stabilisation ring, and copper shorting ring guarantee maximum output with significantly reduced distortion. Advanced Aluminum Matrix cones, provide a lightweight, rigid diaphragm and eliminate breakup modes ensuring proper pistonic motion throughout the operating band.



EXPERIENCE **HIGH  
DEFINITION  
IMAGING**

**AUDITION NOW**

### ALUMINIUM MATRIX

HDI woofers take advantage of core JBL engineering techniques to ensure very high output with low distortion. The long-throw voice coil in conjunction with the symmetrical field motor design, flux stabilisation ring, and copper shorting ring guarantee maximum output with significantly reduced distortion. Advanced Aluminum Matrix cones, provide a lightweight, rigid diaphragm and eliminate breakup modes ensuring proper pistonic motion throughout the operating band.

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# Packing up



The JBL floorstanders in this group won a Sound+Image 2021 award for their performance in straightforward stereo. So what happens if we place them at the front of a full multichannel speaker package and start kicking out movies?

## JBL Synthesis HDI 5.1-channel speakers

JBL's 'HDI' models heralded a new direction for the US loudspeaker company. JBL is, of course, active across both the professional and hi-fi speaker markets, and it's often been the case that its hi-fi designs have the heft of that pro background (see *News* p12), so that even their loving owners might be pressed to describe them as 'décor-friendly'.

So the HDI range has been designed to be easier on the eye, with new finishes, and cabinets where the only flat surfaces are their tops and bottoms. Yet all the main speakers in the HDI range also sport JBL's patented HDI (High Definition Imaging) waveguide technology and its associated high-frequency compression driver, of which more below.

Our first encounter with this range was with the second largest floorstander, the HDI-3600 — and we were so impressed with their smooth fluid midrange sound, lovely imaging, extended highs and great bass that they landed a 2021 Sound+Image Award as our Loudspeakers of the Year \$5000-\$10,000.

But this is a range built not only for stereo; there's everything required for a full home cinema set as well. So we figured it was time to hear a whole room full of JBL HDI speakers!

## Equipment

JBL's Australian distributor Convoy International doesn't group up specific multichannel HDI speaker packages, so you're free to choose whatever combination from the HDI range best suits your space. We went with a 5.1-channel scenario, and chose the award-winning HDI-3600 floorstanders for the crucial left and right front channels, at \$7999 the pair. We could have gone larger, to the flagship \$9999 HDI-3800 design, which would add 11cm in height to the neat metre of the HDI-3600s, and more importantly would switch the three bass drivers from the 6.5-inchers of the HDI-3600 up to a trio of 8-inchers. But since we were already enamoured with the performance of the smaller floorstanders, we retained them as part of our surround experience.

Besides, their slightly smaller drivers seemed a better match for the centre-channel speaker of the range, the \$3499 HDI-4500, which lines up a full four 130mm (5.25-inch) woofers, of the Advanced Aluminium Matrix cone construction used throughout the range, together with the common high-frequency compression driver which gives the range its name. A compression driver is unique among high-frequency drivers. All conventional 'tweeters' — be they cones, domes or ribbons — operate directly into the airspace in the room, where they attempt to move all the air in front of them, which is in effect the entire volume of air in the room. A compression driver, on the other hand, has to compress only the air in a small cavity directly in front of the driver diaphragm. Obviously the air it compresses eventually has to go somewhere, so at the other end of the compression cavity there is a small opening (usually known as a 'throat') to an acoustic horn of some type.

In the case of the models in the HDI range, JBL uses the description 'waveguide' rather than 'horn', but the two share the same purpose, the difference being the way

### SUMMARY

#### JBL Synthesis HDI

Price: \$21,496

- + Mighty movie sound
- + Sensitive treble delivery
- + Also highly musical
- Limited vertical dispersion, so remain seated!



in which the sound waves are radiated outwards, which in turn is controlled by the shape of the horn/waveguide.

According to JBL, the HDI waveguide was specifically designed to deliver neutral frequency responses both on-axis and off-axis, as well as a seamless transition between it and the driver below that delivers the midrange frequencies (though it's not a dedicated midrange driver, as we shall soon discover). The aim was to deliver the smoothest in-room response possible by ensuring uniform directivity. The particular compression driver that's used in the HDI-3600 is a JBL type 2410H-2, which has a 25mm polymer (Teonex) diaphragm with a V-shaped geometry that reduces mass and minimises break-up modes.

In fact we had found during our review of the HDI-3600 that the off-axis performance extended well from side to side, but not vertically. Standing up, above the tweeter, significantly reduced their abilities in the upper frequencies. Remembering this, we set the fairly bulky (28kg) centre speaker firing up slightly, directly to the listening position, ensuring we heard its full effect in concert with the HDI compression drivers from the left and right pair.

The more traditional cone drivers are, as noted, made from what JBL calls 'an advanced aluminium matrix', with chassis that are cast, rather than stamped. In the HDI-3600 one of the drivers is used for midrange, with a hybrid 2½-way crossover network where all three cone drivers deliver the bass below 900Hz, while the driver highest on the front baffle continues up to just below 2kHz, where the high-compression driver takes over. The 2½-way design means that you get the full benefit of maximum cone area (and thus maximum bass) at low frequencies, but the midrange frequencies still come from a point source, which is essential to preserve stereo imaging.

It's less clear exactly how the drivers in the centre speaker are employed, but two crossover points are again quoted (600Hz and 2200Hz), so it seems likely this too is a 2½-way design, with two drivers supporting the midrange, and all four cones delivering bass.

The HDI-1600 standmounts, \$3999 the pair, were the obvious choice for rear channels, with identical drivers to those in the HDI-3600, just fewer of them — a single 6.5-inch cone on mid and bass duties, though crossing over at a lower 1900Hz to the Teonex compression driver.

The last member of the team was the \$5999 HDI-1200P subwoofer, which is HDI only in name, of course, since it is more bass-focused, with a 12-inch (300mm) Poly-plas cone woofer driven by a 1000W internal amplifier. Unusually the subwoofer is available in all three finishes offered for the other speakers: an attractive grey oak veneer (as on the HDI-3600 we originally reviewed, pictured right), a richer walnut (below), and finally a black (main image, left) which may appeal for home cinema use, though note it has a reflective high gloss finish.

## Performance

So the full pack here yields only a few dollars change from \$21,500, but the result is a pretty mighty package from a company that knows a thing or two about cinema sound. Immediately notable was how well the floorstanders integrated with the subwoofer under the filtering of our receiver; the overall response of the system was seamless as the HDI-3600 speakers handed over to the subwoofer. Bass was prodigious when required, but also controlled and detailed. We also appreciated the subwoofer's relative ease of positioning in the room, as although it is a bass reflex design the ports here fire down, with its feet raising the base high enough for the exiting air to clear any carpet (for which you can also add spikes to the feet, as for all speakers in the range).

The movie sound overall was well-balanced in tone, with plenty of depth to punch for blasts, rumbles and underlying tones of alarm, but also significant slam from those high-frequency compression drivers, with the midrange and treble emerging rich and unharnessed.

We generally prefer a subwoofer, if we're using just one, to be positioned up the front

— it's often said that bass is non-directional, but in fact it's merely less directional, and it's not hard to feel a pull towards the bass particularly at its higher frequencies. Here, however, there's an argument for placing the bass at the rear, since we were aware of the rear standmounts' lesser size as effects passed around the room. With the front speakers so bass-capable



in their own right, you might drop your receiver's crossover frequency for those a little and use the sub more to support the full soundfield. Or heck, you could use two subs, or HDI-3600s at the rear too, and enjoy a magnificently matched system.

## Conclusion

What's impressive here is that the system can kick out movies at high level, yet has the quality to deliver music with passion and accuracy too, whether a surround mix from Blu-ray or stripped back to the pair of HDI-3600s, where you can enjoy what we've already established to be award-winning stereo performance. An all-round delivery of music and movies, then, from speakers good-looking enough not to hide away. +

## SPECS

**JBL Synthesis HDI 5.1 pack** \$21,496

**HDI-3600 front L/R:** \$7999/pair; 25mm Teonex compression driver, 165mm mid/woofer; 2 x 165mm woofers; 987 x 255 x 342mm; 28kg

**HDI-4500 centre:** \$3499; 25mm Teonex compression driver, 4 x 130mm mid/woofers; 190 x 841 x 313mm, 20.1kg

**HDI-1600 rears:** \$3999/pair; 5mm Teonex compression driver, 165mm mid/woofer; 370 x 230 x 289mm, 10.0kg

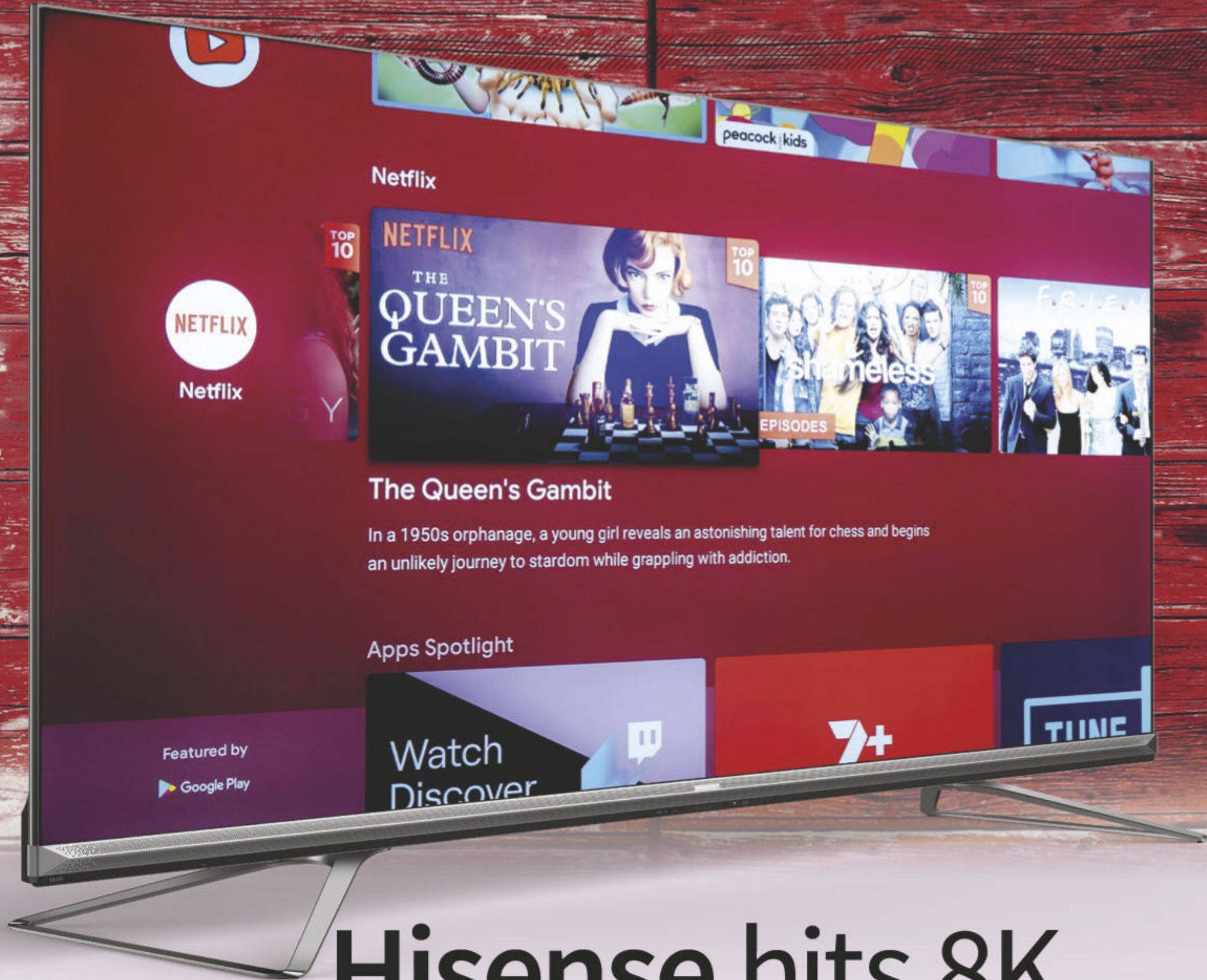
**HDI-1200P subwoofer:** \$5999; 1 x 12-inch driver; 1000W; 431 x 414 x 451mm, 31.8kg

**Contact:** Convoy international

**Website:** www.jblhdi.com.au







# Hisense hits 8K

Once you get to 75 inches of premium TV, is 4K UHD resolution enough to make the most of your screen real estate?

## SUMMARY

**Hisense 75U80G**

Price: \$6999

The first wave of 8K televisions seemed almost absurdly redundant. Quadrupling the resolution of 4K Ultra HD, which had itself quadrupled the resolution of Full-HD, seemed potentially excessive when few people were watching even 4K content, and there was no 8K content at all, except a few test scenes generated for the purpose of 8K demonstrations. We saw first Japan's Sharp launching an 8K TV in Europe, then South Korea's LG and Samsung presented their 8K TVs to Australian audiences and the rest of the world. At that stage we were somewhat dismissive of the need for 8K. Others pointed out that the higher resolution is impossible for the eye to discern at any normal watching distance. What was the point, we asked, except to have something new to sell?

Well, as this 8K TV arrives, the first we've seen from a Chinese manufacturer, our view has since softened. There's now plenty of 4K content, either streaming or on UHD Blu-rays, if not yet a flurry of 8K, although you can make your own with cameras such as Canon's EOS R5 and the new Sony Alpha I (both mirrorless cameras). Panasonic's Lumix S1H does 6K. And our Damascene moment came during a full review of Samsung's current 8K LED, which has such excellent upscaling that we have found ourselves watching, say, the 4K remasters of The Hobbit movies

while sitting on a chair within a metre of the screen. With a 75-inch screen (and anything less really is pointless for 8K), then this can deliver unbelievable resolution, with a viewing angle even home projection can't match.

We didn't get long enough with Hisense's first 8K TV to watch a full movie: they wouldn't deliver it to us for review, something in which they're not alone with such large TVs; vendors tend to be reluctant to ship them for temporary installation. So we saw the 75U80G ULED 8K TV in the offices of Hisense Australia's PR firm in Sydney. Further, the TV there was a hand-built sample, though we were assured it was representative of what the final production units are like. Most likely they will be better, since most TVs receive firmware upgrades early in their production lives as real-world issues arise.

## Equipment

As its name suggests, this TV is another mighty 75-incher — around 190cm — in size. This size of TV precludes the absolute thinness of glass-like panels for rigidity's sake, but this TV is nevertheless impressively sleek in appearance, slim in bezel, with a somewhat spidery stand. We can't speak as to how easy it is to physically



install, not having done so. The TV looked to have four mounting points for a standard VESA-compliant wall-mounting bracket.

All the connections — four HDMI, two USB, one aerial, one analogue AV in, one optical digital audio out, one headphone out — were set into a slim vertical panel on the back that was at 90 degrees to the screen. In other words, all the plugs went in sideways, which allows the panel to be pushed back very close to the wall if it's so mounted.

A word on ULED: Hisense is at pains to note that while it uses Quantum Dot technology for its increased colour control and efficiency (which can mean higher brightness or reduced power, depending on the design decisions), the ULED designation packages its whole range of picture processing features, not the least being the Full Array Dimming Pro backlighting. Hisense is coy about the numbers in this, as are most other brands, for reasons that elude me. But they will say that 'Pro' means greater than one hundred individual backlighting zones.

The panel is 8 bits (256 levels per colour, 16.7 million colours in total), Hisense says, rather than 10 bits (1024 levels, over a billion colours), but it uses FRC — frame rate control — to rapidly toggle each subpixel between adjacent states, which it says effectively adds two more bits.

Hisense rates the panel at up to 1000 nits peak brightness. Two of the HDMI inputs are rated to 8K at 60p, and 4K at 120p. For gamers the TV supports Hisense's Game Mode Pro. This is an auto-detect thing, such that if you plug in, say, an Xbox Series X (or a Sony PlayStation 5, when it incorporates the promised upgrade) which employs such features as Variable Refresh Rate, the TV will respond to the source, adjusting its frame rate to match rendering capabilities.

The TV runs Android TV and comes with a Bluetooth remote control which avoids the need for line-of-sight control.

## In use

Just because we travelled to the TV didn't mean we came completely unequipped. We brought an Oppo BDP-203AU Ultra-HD player and a collection of discs chosen to highlight different aspects of performance, starting at the top in terms of technical specifications: *Gemini Man* on 4K Blu-ray. It runs at 2160p/60 and includes Dolby Vision. The start is always inauspicious with regard to the 60fps frame rate because the Paramount logo seems to run at 30fps, and the second logo, from Skydance, has been crudely converted from 24fps. There's a lot of juddering. But the movie itself was both sharp and smooth. The HFR is evident not just as smoother motion, although it delivers that in abundance, but also enhanced visual sharpness. If there were any processing defects resulting from the upscaling to 8K, the 8K panel made them too small to see. Most impressive, near the start of the second chapter is a scene with yachts in the background, the various ropes and ties sliding across each other as they bob on the water. They remained smooth with no apparent aliasing, despite the upscaling of resolution.

With Dolby Vision, TVs are locked into certain visual settings with little ability to adjust them. This TV had been tuned for a naturalistic appearance, it seemed. Not quite as rich as OLED, as far as we could judge, but perhaps more believable.

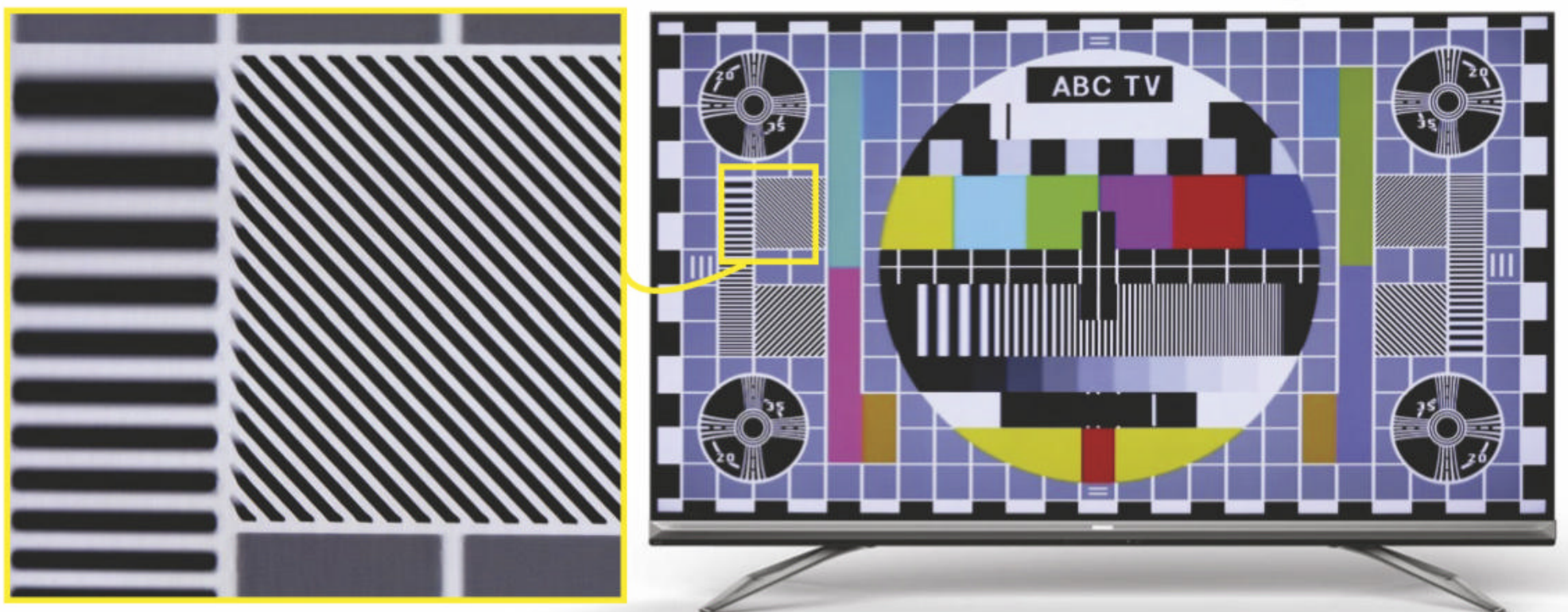
Stepping down in source quality a very long way, we plonked a 576i/50 test DVD into the Oppo and delivered its contents to the TV at native resolution. The first clip was an old ABC test pattern captured from free-to-air broadcast many years ago. Hisense is pretty proud of its AI upscaling. This has been trained to recognise various patterns over hundreds of thousands of iterations, and optimise scaling for those patterns. We can't check all those thousands, of course, or

even know what they are, but the ABC test pattern has a block with diagonal lines, and these were rendered smoothly and extremely sharply. They may as well have been delivered at 8K rather than being upsampled from 576i. That's a 7.5-to-1 upscaling, or 56 times the original number of pixels. A naive conversion would have had them looking like a staircase. A slightly less naive conversion would have had them smooth, but very fuzzy.

Curiously the AI was less clear about what to do with horizontal lines, leaving them relatively fuzzy. And with unfamiliar shapes, it didn't really know what to do. The Oppo screen saver logo, which is white on black, delivered at 576i/50, ended up looking very wobbly.

The 576i/50 deinterlacing was fairly competent, albeit with the TV inclined to inappropriately slip back from film-mode to video-mode deinterlacing a bit more readily than is the norm in premium TVs these days. In practice, video comparable to our torture-test scenes will rarely appear in program material, so most users should be happy with the results when feeding native 576i/50 to the TV.

Jumping up to 1080i/50, like the Blu-ray of *Miss Potter*, the TV mostly used the correct deinterlacing approach; we'd score it about average there. We asked a chap from Hisense if the TV used its object/shape/edge identification AI features for motion smoothing as well as scaling. He was uncertain, but we wouldn't be surprised if it did. Using scenes from *The Fugitive*, the 'Standard' setting for motion smoothing was first class: super smooth and with no artefacts.



▲ For the moment, 8K TVs are all about the quality of upscaling, and this photographically-captured detail from a 576i ABC test card shows intelligent identification of diagonals.





▲ The Hisense 8K TV as we met it in the Sydney offices of the company’s PR agency. The connections panel is on the back, with all sockets usefully facing sideways.

Blacks levels were good. With the PR office’s lights turned off things weren’t entirely dark, but reasonably so. Using test patterns — nasty full-white on full-black ones — the backlighting was nicely confined to an area quite close to large objects. In real-world content you’re unlikely to notice the splash over the edges of contrast objects. It was obvious only on a ‘Starfield’ video which has white dots of one to a few pixels moving across the screen, as though you’re speeding through some starfield. You could see the backlighting zones showing up here, and there, and over there, as required to make sure the stars shone. Where the stars shone, the surrounding black turned dark grey.

Smarts

Hisense smart TVs come with either Android or the company’s own VIDAA smart system. It usually prefers the latter for its premium models — controlling its own system and chipsets, it isn’t beholden to any other business — but I understand that COVID-related supply issues delayed VIDAA for this year’s 8K models. Android is, of course, a very solid product (we prefer it to VIDAA). And it includes Google Assistant. So of course there’s a Google Assistant button on the remote control. But the TV also has microphones, so you can just speak to it like any Google speaker, with the added feature of controlling TV functions and searching for programmes.

And, of course, it has a discreet hardware slide switch on the front panel so that you can physically defeat the microphone.

When we saw this TV, there was a little bit of uncertainty about final functionality: do you need to have the TV switched on to use Google Assistant? Even in standby mode, the TV does presently listen, and four little LEDs in a row under the TV panel light up just like on a Google speaker if you say, ‘Hey Google’. And indeed, you can even switch on the TV by command. But it was unable to use its speakers to provide answers to mundane questions when switched off. This may or may not be altered in newer versions of the firmware.

Otherwise, Android on this TV worked as Android does on any TV with sufficient processing power: smoothly and effectively. And this TV’s quad core processor clearly provided sufficient processing power.

The office Wi-Fi at the test site was good for 75Mbps internet connections. We checked out some 4K Netflix. David Attenborough’s cultured tones were accompanied by jittery sharks swimming through the ocean. Checking the picture settings we found that Motion Enhancement was off. You need it on for Netflix because Netflix sends everything at 60Hz. Clearly *Our Planet* was captured at 24p. The clarity of this TV meant the conversion judder (AAA-BB-CCC-DD) was easily visible. Just keep motion smoothing on for Netflix. Most importantly, the picture was beautiful and rich.

A little 8K stuff streamed from YouTube dropped quite a few frames, so the internet pipe clearly wasn’t quite fat enough for that.

Finally, our own 8K test patterns, fed via USB, were USB-bottlenecked to 4K, though 4K images come through intact. We would

have liked to check an 8K feed to the unit via HDMI, but we don’t yet have an 8K-output device to check that with.

**Conclusion**

For the most part, the main job of an 8K TV as the world stands today is to deliver smooth, engaging imagery from lower resolution sources. Such as we can judge from this brief hands-on, the Hisense 75U80G ULED TV easily does that. And with its 75 inches, it fills any room with high-quality picture. +

SPECS	
Hisense 75U80G	\$6999
<b>Display technology:</b> LED backlit LCD panel	
<b>Screen size:</b> 190cm	
<b>Native aspect ratio:</b> 16:9	
<b>Native resolution:</b> 7680 x 4320	
<b>Brightness:</b> 1000 nits peak	
<b>Contrast ratio:</b> Not stated	
<b>Picture:</b> 8-bit panel+FRC, Full Array Pro, Dolby Vision, HDR	
<b>Inputs:</b> 4 x HDMI (two 8K/60Hz, two 4K/60Hz), 1 x composite video, 1 x stereo audio, 2 x USB, 1 x Ethernet, Wi-Fi, 1 x aerial	
<b>Outputs:</b> 1 x optical digital audio, 1 x 3.5mm headphone	
<b>Audio:</b> 2 x 15W, 2 x tweeter, 2 x midrange	
<b>Included accessories:</b> Table stand, remote control	
<b>Dimensions (whd):</b> 1676 x 990 x 76mm without stand, 1676 x 1088 x 424 with stand	
<b>Weight:</b> 37.0kg without stand, 38.2kg with	
<b>Contact:</b> Hisense Australia	
<b>Web:</b> www.hisense.com.au	





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# The Director's Chair

by  
**Signature  
Cinemas**

**SOUND+IMAGE  
PRESENTS  
WORLD-CLASS  
AUSTRALIAN  
HOME CINEMAS**

**I**t's one thing to design a home cinema for a movie enthusiast, but another thing entirely when your client actually works in the movies. Matt has spent his working life in editing suites working on major blockbuster movies, so when he and his family decided to commission a dedicated theatre on the lower level of a new-build home, he knew exactly what he wanted.

"I wanted a professional director's screening room," Matt told us when we visited the spectacular ocean-front residence and were led downstairs, where a corridor leading to the underground car park branched left to an engraved cinema door.

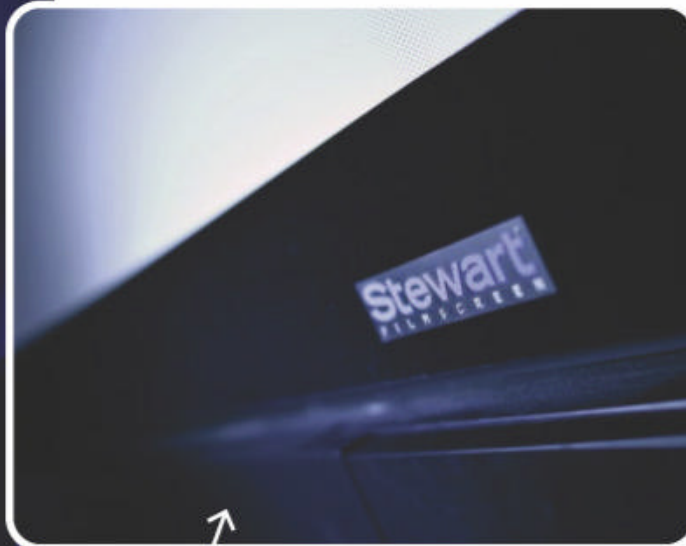
**Signature Cinemas transformed this space from concrete bunker to a screening room good enough to satisfy a movie industry client.**

"Having worked in the film industry for over 20 years as a director and editor, I have this passionate love for cinema, and I knew what I wanted to fill this space. And having worked on previous projects together, I knew Alberto was the only one I trusted to make it a reality."

## **Signature Cinemas**

The idea, Matt says, was to create a "kick-arse" room that is a throwback to classic Hollywood picture theatres, but with state-of-the-art technology and a contemporary flair. Enter Signature Cinemas, a relatively new company delivering bespoke home cinemas, media rooms and smart homes, founded by Alberto Vangi to leverage his 20 years of experience in delivering projects for some of Sydney's major industry names. This cinema room has been a 12-month project, with Signature Cinemas engaged from the very beginning.





“Yes, the key was that back middle seat, to make that seat the ‘Director’s Chair’ that Matt wanted,” says Alberto. “Then around that I created further seating for the front and the rear row, while by applying Trinnov mathematics I was able to ensure I still had the required 800-900mm from the back wall and all the correct viewing angles to the screen. Trinnov I refer to as the absolute benchmark in processors, and although it

◀ **SCREEN & SUBS:** The screen is a 160-inch acoustically-transparent Stewart Filmscreen in 16:9 ratio. There are four subwoofers: two 12-inch Sunfire models at the front inside the custom cabinetry, and two more at the rear.

isn’t the processor at this instance — though that might make a future upgrade — the room followed their recommendations in very specific fine details, with their recommended angles for both audio and video listening and viewing positions. By applying their mathematics I was able to provide perfect symmetry in the room for the sound. It made a world of difference to the overall experience.”

## Build and design

It turned out that both Matt and Alberto are fans of Cremorne’s Orpheum cinema with its classic style, and the decision was made to incorporate that feel into the new cinema.

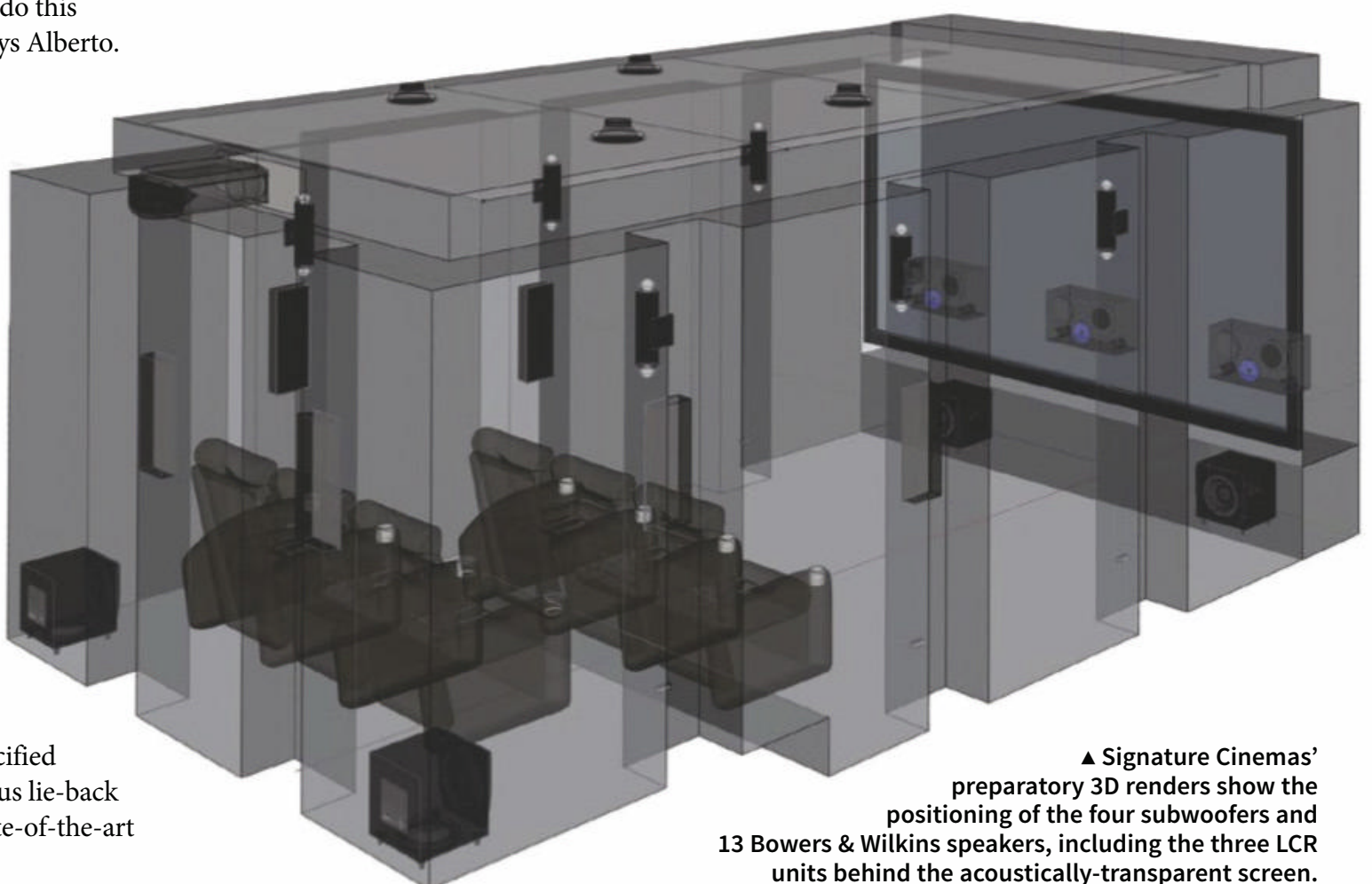
“We knew we wanted to bring a bit of red into the room,” says Alberto. “I did a lot of research into red, how human eyes are less sensitive to red and it reflects very little light, so maintaining the contrast for the screen. Essentially I was trying to avoid it being a big grey box — we needed to put some colour in the room, some depth, and that’s why we went with this acoustic panelling.”

The red panels on the side walls are acoustic panelling from Ultrafonic, the Queensland-based acoustic consulting company, where the panels were all custom-made to size and finished in what Alberto describes not as an outright red but as a very specific shade of ‘cherry’.

“We selected all the locations to make sure they agreed with his acoustic engineering, and

“I was given the opportunity to do this project from the concrete shell,” says Alberto. “So the client didn’t provide any interior designers, no architect. The project manager essentially said ‘Alberto, this room’s yours, you decide the builder you want to use, draw it up and provide the room start to finish, and it’s between you and your resources to complete the room’.”

But he did have a solid brief from Matt — notably the ‘Director’s Chair’ concept. The room is approximately 7.7 × 3.8 metres, with a 160-inch Stewart Filmscreen 16:9 screen illuminated by a Sony native 4K projector, and reference-level sound delivered in what could be described as a 7.4.4-channel delivery (see overleaf). Alberto specified a five-seat cinema, with two spacious lie-back loungers at the front, and three state-of-the-art recliners in the rear row.



▲ Signature Cinemas’ preparatory 3D renders show the positioning of the four subwoofers and 13 Bowers & Wilkins speakers, including the three LCR units behind the acoustically-transparent screen.



# audio-visual

## home cinema installation

essentially that was the key to the acoustics of the room,” says Alberto. “Meanwhile the builder was Innovative Building Services, one of Sydney’s most respected luxury home builders — we’ve done a number of cinemas together in the past. The reason I use him [Joe Fuda, the owner] is because even when there’s an ample amount of bass, there’s no rattle in the rooms, they’re particularly solid. He always uses SoundChek gyprock, he uses the Green Glue, he also uses the Safe’n’Sound rockwool in the walls [a stone-wool sound insulation product]. Here he’s applied all the key cinema guidelines and built another beautifully finished and solidly-built room.”

Also helping keep the sound within the room is the sound-sealed 50mm solid timber acoustic door, which Alberto notes as carrying another touch from the Cremorne Orpheum.

“I actually wrote to the Orpheum management team looking for the font they use in their typography,” he says. “We paid for its use so we could engrave the world ‘Cinema’ in that font on the door itself.”

### Star quality

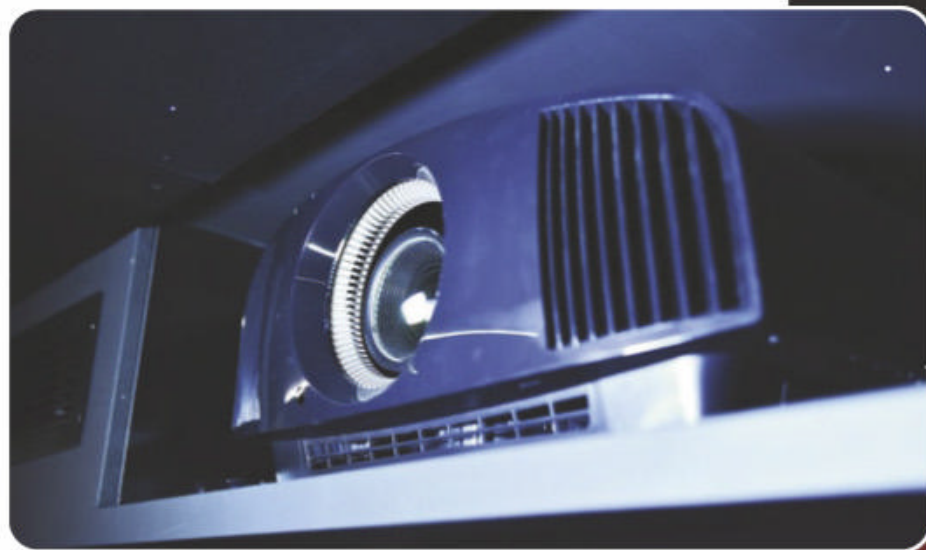
Lighting was another key to getting the feel right in the cinema. There’s Crestron lighting, with a Crestron Horizon lighting panel and

control of both the lighting and the AV electronics from a Crestron TSR-310 remote control. And hanging above it all is a Sky@Night star ceiling made to order by John Major at Sydney’s Screen Science.

“John was key in advising on the spectacular star ceiling,” says Alberto. “Not only is it a beautiful feature of the room, it’s a very clever solution — they’re made in panels, and John sprayed the overhead speaker grilles with a surface coating that makes them totally non-reflective without affecting the sound.”

It was true that even with the lights up we had to peer very hard into the star ceiling void just to spot where the ceiling speakers have been located.

“Essentially in terms of lighting the key to me was that we’ve got the best of both worlds,” says Alberto. “The lights create an atmosphere for the room; that was a critical thing where I needed to make the room have a bit of warmth. I consulted with a professional



▲ **NATIVE 4K:** the projector is a Sony native 4K model, with sources including 4K Blu-ray, AppleTV 4K and Xbox gaming.

lighting expert from Tovo Lighting, and he agreed with the location of the lights to make sure it wasn’t overly lit — it has that cinematic feel. And I had to ensure that when we produce light in the room, all the colours were avoiding any reflection off the screen back to the walls. So when you’re watching a movie, yes you can have the stars still on, but if you really want a pitch black room, to have all the contrast from the screen, you can do that.”

**AFTER**

### Sound and light

At the heart of the room’s audio system are Yamaha’s top Aventure models, the pre and power combination of CX-A5200 processor/preamplifier and MX-A5200 multichannel power amplifier.

“So that’s an 11-channel power amplifier, being used to power a complete suite of Bowers & Wilkins 700 Series Cinema speakers,” explains Alberto.

The front speakers behind the acoustically-transparent screen are a trio of B&W CT7.3 units, each with B&W’s noted Nautilus tube-loaded tweeter, a dedicated Kevlar FSTTM midrange and a pair of eight-inch paper/ Kevlar bass units.

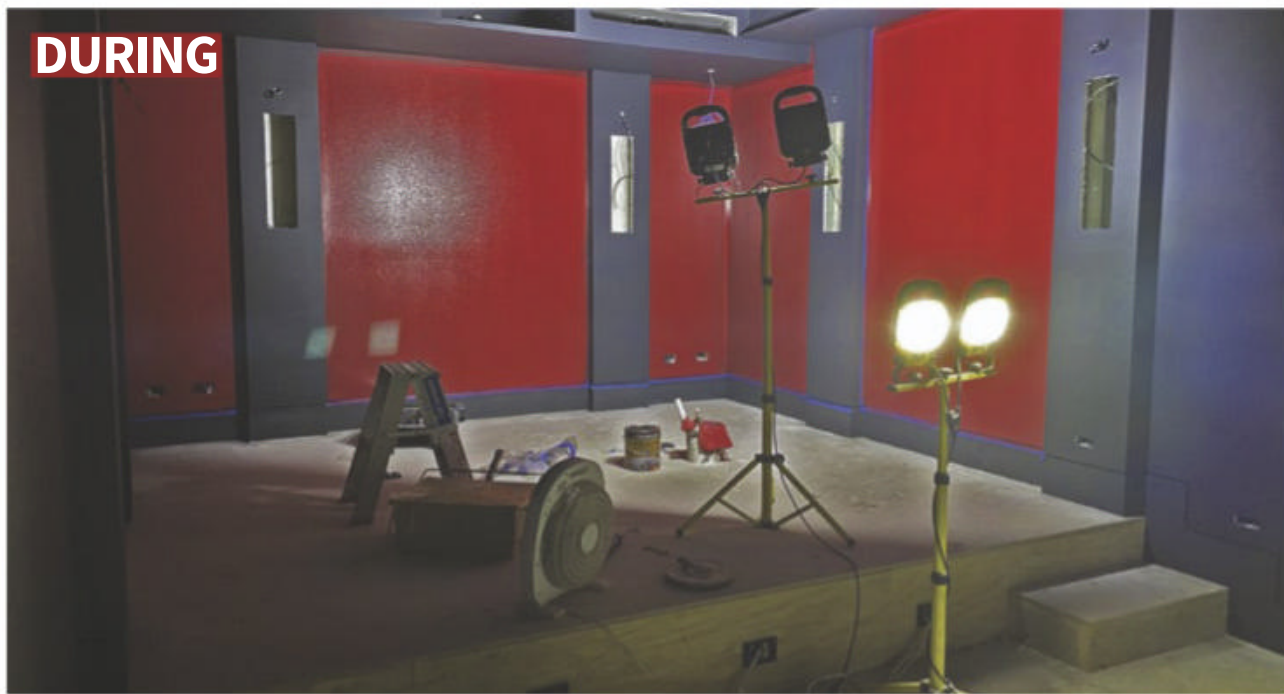
Then there are six B&W CWM7.4 S2 speakers (pictured far right)— four as side speaker pairs either side of each seating row, and two for rear surround. Each of these speakers has five drivers — a centrally-positioned tweeter plus twin four-inch Continuum mid/bass and twin four-inch fibre-paper bass cones.

Then the four in-ceiling speakers are B&W CCM7.5 S2 models, each with directable carbon-dome tweeters and seven-inch Continuum mid/ bass cones.

“We combined the two left sides and two right sides to work together, like a



**BEFORE**



**DURING**





commercial cinema,” notes Alberto. “That’s how we were able to have 13 speakers even though there are only 11 channels.”

Four subwoofers are used: “Two at the front, two at the back,” says Alberto, “all 12-inch Sunfires, with the whole idea of having the four subs being to remove the node and to get the perfect balance.”

Meanwhile the projector is Sony’s VPL-VW570ES with its native 4K projection shining 1800 lumens onto the Stewart Filmscreen 160-inch screen. Why a 16:9 screen ratio rather than 2:35-to-1? Matt was clear on that one.

“Xbox gaming!” he beamed at us. “That’s why I wanted it 16:9.”

It also maximises most key viewing formats within the wall space, notes Alberto.

Other sources in the room include a Panasonic 4K Blu-ray player and free-to-air tuner, and an AppleTV 4K. The projector was “tuned to perfection” by ISF calibrator Mick Peaker from Avical.

“His expertise lifted the image to another level of colour accuracy for a truly life-like experience,” praises Alberto.

We were able to enjoy a few Atmos test tracks ourselves through this system, and can attest both to the achievement of clear and balanced sound in the room, while



▲ **CRESTRON CONTROL:** The remote control sits in a charging dock and gives access to both lighting and control of the AV electronics.

► **SIDES & SURROUNDS:** Six of these five-driver B&W CWM7.4 S2 speakers provide side and rear-channel sound.





# audio-visual

home cinema installation



nevertheless being able to deliver visceral levels of impact. The raging wind of the storm that closes the 'Les Saisons' Atmos demo track was very effective, while the 'Leaf' demo confirmed the accuracy of steering, the leaf's rear pass being particularly strong.

The client, Matt, is clearly equally satisfied, and we'll give him the final word.

"The acoustics alone are amazing," he tells us. "It's so nice and quiet and dark you can sleep in it — in fact we've had babies sleeping

in here! But once the lights go down and the room comes alive with sound and picture, you're instantly transported right into the on-screen action. It's a testament to Alberto's attention to detail and passion. He understands cinema sound and picture like a cinematographer and sound mixer. In many ways this home cinema outperforms most commercial cinemas — and it could easily be used as a professional screening room. It's simply that good." +

## EQUIPMENT & CONTACTS

### EQUIPMENT

**Sony** VPL-VW570ES 4K projector

**Stewart Filmscreen** 160-inch 16:9 acoustically-transparent screen

**Panasonic** DP-UB9000 4K Blu-ray player

**Panasonic** DMR-BWT955GL free-to-air tuner

**AppleTV** 4K

**Yamaha** AVENTAGE CX-A5200 preamplifier

**Yamaha** AVENTAGE MX-A5200 power amplifier

**Bowers & Wilkins** CT7.3 LCRS x 3 (LCR)

**Bowers & Wilkins** CWM7.4 S2 x 6

**Bowers & Wilkins** CCM7.5 S2 x 4 (height)

**Sunfire** HRS12 subwoofer x 4

**Xbox** One X

**Furman** power protection

**Ruckus** Wi-Fi & network switch

**King** Cloud III seating

**Sky@Night** star ceiling by Screen Science

**Crestron** control system

**Crestron** TSR-310 remote control

**Crestron** Horizon light switch

### CREDITS

**Video calibration:** Avical

**Builder:** Innovative Building Services

**Acoustic treatment:** Ultrafonic

**Networking & IT:** Definitive IT Solutions

**Photography:** Peter Tsui at Studio Kai

### DESIGN & INSTALLATION

**Signature Cinemas**

**Telephone:** 02 8006 8882

**Email:** [info@signaturecinemas.com.au](mailto:info@signaturecinemas.com.au)

**Web:** [www.signaturecinemas.com.au](http://www.signaturecinemas.com.au)





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## group test

wireless stereo speakers

### ▼ REVIEWED THIS ISSUE ▼

Ruark **MR1 Mk2**

Klipsch **The Fives**

KEF **LSX**

DALI **Oberon 1 C**

Q Acoustics **Q Active 200**

ELAC **Navis ARB-51**

KEF **LS50 Wireless II**

Bowers & Wilkins **Formation Duo**



**GROUP TEST**

# WIRELESS STEREO LOUDSPEAKERS

## Sensational sounds from simplified systems

They can be systems in themselves — stereo loudspeakers with built-in streaming and amplification, inputs for TVs and other sources. But how do they sound?

Here at *Sound+Image* we are great believers in speakers which have amplification built-in. They can wildly simplify the traditional hi-fi system into something far more suited to the modern age, modern homes and modern décors. Instead of a stack of hi-fi components, you might reduce your system to a pair of streaming powered speakers with your TV plugged into them. A good pair of powered speakers used in this way will trounce the sound from your average soundbar and will very likely also provide a far neater solution.

The best of them have become well-known and even revered — notably KEF's great success with the LS50 Wireless speakers and the smaller LSX, both of which are included in this round-up.

But truth be told, many such speakers have an image problem. We argued even over what to call them in the context of this group test. "Wireless speakers" seems an inadequate term because we're looking specifically at stereo pairs, proper hi-fi style speakers but with amps inside — whereas "wireless speakers" might describe piffly little portable Bluetooth speakers as well. Also, one model here, the ELAC Navis, turned out to work best specifically when it isn't wireless at all, though a wireless option is certainly there.

"Active speakers" is a widely recognised term for stereo hi-fi speakers which are powered, but the definition is actually quite

strict. "Active" specifically means that the crossover is active, taking place before the main amplification. So while all active speakers are considered powered, not all powered speakers should be called active. They may use the same signal path as a passive set-up, but with internal amplification — one giveaway of this is when there is a master speaker that has the amplification and a passive slave speaker connected by a cable. The Ruark and Klipsch models in our group are powered, but not strictly active.

So "powered speakers" is correct, but it's a prosaic term few choose to use.

To overcome the terminology tangle, we've added a text bar beneath some model names where manufacturers specify a particular term for the speaker: "Bluetooth speaker system", "wireless stereo speakers", "powered bookshelf speakers", and so on. Other manufacturers side-step the definition thing, and we've left those without a qualifying text bar.

But merely powered, or powered and active, all these speakers work without an external amplifier, and have some way of receiving music wirelessly. And on paper, this arrangement has a number of advantages, even beyond the convenience and simplification of your system. With the power amplification integrated into the design, it can be optimised for a specific speaker, and in active designs for a specific drive unit. There's no need for long lengths of speaker cable, avoiding distortion or losses in the wires. Designs with active

crossovers allow greater control over the signal, which is far less prone to losses and phase distortions compared with a passive filter.

Are there arguments against the genre? Well, if the company is a loudspeaker specialist, how much do they know about amplification? A common path is to buy in modules from an OEM supplier, which may leave you with inferior power compared with a specialist hi-fi amplifier, a sacrifice of quality for convenience.

Active and powered designs also limit the amount of upgrading possible later. You can't change the power amps; they're built in. It may be hard to upgrade streaming to later standards. Enthusiasts and dealers like to mix and match, getting the best from each corner of the hi-fi world. Wireless stereo speakers are more like an all-in-one system — that's your lot. And if something breaks, it's all broken.

Not that we would expect products of the quality in our round-up to break, nor in most cases to disappoint with sub-optimal quality. As we say, we're great fans of the powered stereo speaker genre. We think they suffer from issues of perceived value, because they look like a normal speaker but they cost more, hiding their amplifiers and streaming tech inside. We wish to stop this prejudice against powered speakers, by detailing how good the best of them can be, and how they can bring glorious hi-fi sound to your home while removing much of the kit and nearly all of the cables. Sound like a plan? Read on...





## WHAT TO LOOK FOR WHEN CHOOSING POWERED WIRELESS SPEAKERS

### BLUETOOTH OR NETWORKED?

Some wireless speakers, usually the less expensive models, use only Bluetooth for their wireless streaming. Others use Wi-Fi or Ethernet to connect to your home network and out to the internet. Bluetooth transmission limits you to point-to-point streaming, from a portable device or computer to the speakers. A network connection enables the speakers themselves to stream directly from the internet, so that while you may control playback with your smart device, the system still works when your device isn't present. Bluetooth is also limited in quality, even if you're able to take advantage of the higher-level Bluetooth codecs. A network connection can deliver music losslessly, either directly from the internet or using Wi-Fi-based streaming systems like Chromecast and Apple's AirPlay.

### BLUETOOTH CODECS

If Bluetooth is going to be an important method of streaming for you, then check which codecs are available — both on the speakers, and on the device you'll be using to send the music. The base level of Bluetooth music transmission uses the SBC codec. Apple devices can use the AAC codec to send better quality, so it's useful to have speakers which support AAC. Some Android devices (but by no means all) can use aptX or aptX HD to raise the quality still higher; Sony has LDAC, but it's not widely supported. However, it's no use the speakers having aptX if your device doesn't, or vice versa — you'll end up back on the base-level SBC codec. Note also that no Bluetooth codec is lossless; they all use compression which removes some music data.

### INPUTS & HUBS

How many inputs do you need, and what kind? One downside of having the amplifiers inside your speakers is that the inputs for external kit are often limited compared with using a hi-fi amplifier, so you may get only one or two analogue inputs and very limited digital connectivity on a pair of powered speakers. How would you plug in a turntable, for example? To overcome this limitation, some powered speakers can connect wirelessly to a 'hub' which can offer more inputs, and potentially be positioned away from the speakers, more conveniently near other sources; indeed a hub can allow a radical redesign of where you have other hi-fi sources. However, a wireless hub may be an optional extra, increasing the purchase price, and the hubs can themselves bring complications (anything wireless often does) and potentially limits the quality of transmission to the speakers at a fixed sampling rate. We note these things in our reviews.

### TV SOUND

Playing TV sound through your powered stereo speakers is a solution we heartily recommend as an alternative to a soundbar. A number of the speakers in our group test now have an HDMI socket with ARC which can connect to your TV and play audio back down that cable — though this does then hog one of the HDMI inputs on your TV. Optical is another possible connection; analogue is the final fallback for TV sound (and not all TVs provide it). We have also experienced unpredictable incompatibilities between certain TV models and the inputs of certain powered speakers and DACs. If there's any way you

can test this before you buy, perhaps with a loaner from a friendly dealer, we'd highly recommend it.

### IS THERE AN APP FOR THAT?

The quality of an app greatly affects the quality of your user experience, though in many cases you can simply use the streaming app you already prefer — Spotify, Tidal etc — and just select your speakers as the output. It's also worth considering how/if your speakers would work if the control app ever disappeared. All the companies in this round-up are long-timers with track records, but nothing is forever. Products that live entirely by their app can also die by their app, and system changes by Apple and Android can render older non-updated apps redundant or reduced in their abilities.

### REMOTE CONTROL

A physical remote control is a near-essential for powered speakers. You don't want to be calling up an app to pause or make volume changes.

### POWER RATINGS

Our usual warning on amplification power ratings apply here. There are so many variables when quoting power than comparison between brands is often meaningless. Look particular for a quoted distortion figure (usually THD) — if it's 10% or even 1%, the power rating can be hugely overstated compared with amplification quoting hi-fi levels of distortion down at 0.0 something. Do you want 10% distortion in your sound. No you don't — yet that's the basis on which most soundbars, for example, list their surprisingly high power ratings.





# Ruark MR1 Mk2

## Bluetooth speaker system



Usefully compact powered speakers with a sound larger and more ‘hi-fi’ than expected.

**R**uark Audio, once a builder of traditional loudspeakers, has reinvented itself over the last decade through nifty DAB radios and other compact audio systems. These MR1s saw the company putting several of the company’s key technologies into a neat pair of standalone powered speakers. Originally released in 2013, they are now in a Mk2 version, still just as usefully compact.

### Size and design

Yep, compact indeed. They stand, basically, 175mm tall by 130mm wide and 135mm deep, so usefully small that you might expect them to be, shall we say, less than full in their sound. (Spoiler: you’d be wrong.)

They certainly have an attractive design, with their rounded edges and the neat wrap, available in “rich walnut veneer” or “soft grey lacquer” finishes, both with grey non-removable ‘British milled fabric’ grilles. The right speaker is an active unit with connections; the left is passive. A large volume and selection knob (Ruark’s RotoDial) sits on top of the active speaker, and a small triangular section at the bottom of the grille is the receiver for the tiny infrared remote control.

Inside each enclosure is a 20mm silk-dome tweeter and a 75mm bass/midrange driver. Each enclosure is held almost a centimetre from the surface upon which it is placed by four rubber legs, leaving room for their bass reflex ports to fire downwards.

**“They may not satisfy the most frenzied metal fan... but are otherwise ridiculously impressive in view of their tiny size.”**

Ruark Audio says that each channel is provided with 20W of Class A/B power, spruiking the design’s claimed sonic advantages over digital amps. The two speakers are linked with a braided cable between the two speakers, terminated at both ends with mono 3.5mm jacks. One clever feature here is that if this cable is removed from the active speaker, it switches to mono operation.

As for inputs, there’s no networking here, so no app control or direct streaming available, but there’s Bluetooth, with optical and analogue audio inputs provided. The Bluetooth includes the aptX codec for Android devices which support it, though

not AAC for Apple devices. The optical input here proved to support input signals up to 24 bits and 192kHz sampling. They switch on automatically when a signal is detected. The controls are restricted to level, input selection and on/standby. No EQ required, clearly!

Two options for expansion: there’s a level-controlled subwoofer output should you desire more bass than the speakers are capable of producing. And there’s also battery operation available if you get the optional ‘BackPack II’, which

attaches to the back (see bottom right image opposite). This pack delivers around 12 hours of portable performance.

### Listening

We can see many people using these as desktop speakers, but we began by giving them proper support on our stands in the location in our system normally occupied by much larger main listening speakers. And size be damned — they filled the room with sound. Two things on volume. First, the speakers went to a very satisfying level on **regular music. They will probably not satisfy the most frenzied metal fan, and they lack**



the headroom for the crescendos of large orchestral works. But otherwise? Very impressive, and ridiculously impressive in view of their tiny size.

Second, they also have plenty of gain, including with Bluetooth. Many Bluetooth speakers clearly have additional capacity above their maximum Bluetooth volume, only revealed when you switch to analogue input signals. None of that here. You can turn these speakers up loud. While on the subject, each press of the volume key, or click advance on the top control knob, amounted to around two decibels of level adjustment.

Initial impressions were surprising and pleasing. With The Clash's *The Magnificent Seven* the sound had bite but fine control, and a very engaging bass line that seemed fully in balance and, while not particularly extended, was nonetheless surprisingly deep considering the compactness of these speakers.

In part that proved an artifact of the particular track. Later, with more familiar tracks from Dire Straits 'Brothers in Arms', the familiar bass from *Ride Across the River* was missing its underpinnings, and there was a hint of zing in the upper frequencies. The latter was easily tamed simply by placing the speakers so that they fired straight ahead, rather than having them angled in towards the listening position.

With Kate Bush's 'The Kick Inside' things seemed a lot more balanced again, especially at the bass end. The thumping part of percussion was entirely absent, of course, but the bass line was strong and tuneful. All this suggests that the speakers provide strong bass performance to a particular cut off — 90Hz or so — and decreasingly little below that point. Subsequent measuring at a medium output showed bass output level down to 110Hz, although with a boost around 200Hz. Compared to the midrange the bass was at -6dB by 80Hz and continued to fall away evenly below that point.

Moving to George Ezra's album 'Wanted On Voyage', that upper frequency zing was confirmed, verging on a slight whistle. To be fair this album has obviously been recorded with radio play in mind, so it isn't especially restrained at the top end. It depended, too, on the track. *Blame It on Me* had some vocal elements that verged on piercing, while *Budapest* was merely brightened by the sound.

Move the Ruarks to a more intimate desktop position and you gain the benefit of their musical subtlety and rich detail. In this closer positioning you can enjoy their fluid dynamics on a whole new level, and hear how they allow plenty of space between instruments in the airy soundstage

We took advantage of the subwoofer output to couple the speakers with a Krix subwoofer (filter set to around 90Hz). This took the performance to a new level. With the



Krix in play the zing seemed tamed and the mids and highs felt smoother. The subwoofer output is variable, so once you match the sub level with the speaker output level, they should remain in balance. The sub output is not filtered, though, so you will need a subwoofer with a low-pass filter control on its input.

## Conclusion

Of course the Ruarks are ultimately limited by their size, but what's remarkable is the size that they do manage from such small cabinets, coupled with real hi-fi qualities, not the type of processed sound that lesser Bluetooth speakers invariably delivered. With true stereo separation and musicality, the Ruark MR1 Mk2s are a great pick where such a compact form factor is required.



## SPECS

### Ruark MR1 Mk2

\$699

**Drivers:** 20mm treated textile dome tweeter; 75mm long-throw woofer

**Inputs:** 1 x analogue minijack, 1 x optical digital, Bluetooth (SBC, aptX)

**Outputs:** minijack to speaker 2, RCA subwoofer out

**Dimensions (whd):** 70 x 130 x 135mm

**Weight:** 3.1kg (both)

**Contact:** Synergy Audio-Visual

**Website:** [www.synergyaudio.com](http://www.synergyaudio.com)



# Klipsch The Fives

**powered speakers**

**No networking here, but  
profoundly solid sound  
from TV, computer,  
Bluetooth and vinyl.**



**T**he Fives arrived for review after most of the others, and directly following the Q Acoustics Q Active 200s. The contrast between those unusual modernist designs and the Klipsch Fives couldn't be greater. The Fives are lighter, squarer, more wooden — hand-crafted MDF with a walnut veneer or matte black painted finish, and presenting a more traditional fascia, though with that big patented Klipsch Tractrix horn and compression driver dominating the top half where a dome tweeter might more normally sit, and a 114mm (4.5-inch) high-excursion fibre-composite mid/bass cone beneath. One speaker has knobs on the top, and you have to link the other speaker with a four-metre signal cable, since only one speaker is active, the other passive. Pleasingly you can select which is left and which right with a switch on the back.

All of which is highly traditional, and reminds us rather of budget active speakers from the likes of Edifier, which operate very similarly. The Klipsch active speakers are far more expensive than those, far less expensive than the Q Acoustics models. Here's the thing, though — we'd rate the sound of The Fives above either of them.

## Ancient & modern

Klipsch is, of course, clever in highlighting the very traditionalism here, as it does with its Heritage lines. "Remember great sound", they ask, noting their history back to Paul W. Klipsch's original Klipschorn in 1946. "We never forgot," they smile. Look to the proper metal roll dials on top of the master speaker for more evidence of this vibe, perhaps the Tractrix horn too. Or if this is too large to be staring you in the face all the time, there are magnetic grilles attached, and when we tried them on for size they looked very classic indeed with their textured woven grilles and little Klipsch badges.

However, it's underplaying the Fives to accuse them of being entirely a traditional design. They can play high-res audio up to 24-bit/192kHz. The high-frequency driver behind the Tractrix horn has a titanium dome, something of which Paul W. couldn't dream. There's an HDMI ARC connection on the back of the active speaker, along with optical digital, a USB-B computer connec-

tion (which has proven surprisingly rare in the active speakers in this group), and two analogue inputs — one on a minijack socket, the other on proper RCAs and switchable between line-level or phono level suitable for a turntable with a moving-magnet cartridge. There's a subwoofer output, should you wish to supplement their bass abilities. And there's Bluetooth, its codecs unlisted in the specs but confirmed in a Klipsch blog as offering both AAC to benefit iOS users and aptX HD for Android devices which support this (or aptX).

You get a remote control, and the printed manual (which curiously offers its first 20 pages twice before moving on to page 21) helpfully lists all the remote hex codes so that those with snazzy programmable systems can get The Fives linked in for control.

The speaker bases are raised on a rectangle of cork, which feels both classic and modern, and seems entirely unlikely to scratch the surface below. Given we've seen "Audiophile Bookshelf Speaker Cork Isolation Pads" for sale online, it's a bonus to get a whole slice of the stuff here! The Fives are "designed with pride" in Indianapolis, built in China.

There is an app — Klipsch Connect — but this is limited to confirming set-up, showing instructional videos, and performing firmware updates online, which we did shortly after set-up. So what isn't here is any network



◀ Two solid metal rollers on the master speaker adjust volume (bottom) and source selection (top). The selection LEDs double up as indicators for other changes.



connection; the speakers don't do any direct streaming from the internet; instead your choices for streaming are to do so via Bluetooth, or on a computer plugged into the USB-B connection, or from some other connected component (such as one of the standalone streamers we reviewed last issue).

## Listening

We began with The Fives on stereo TV duties for a week, to warm them up and become accustomed to their sound. For this we connected them to the designated HDMI ARC socket on a 2020 model Samsung TV, and once we'd selected the 'TV' input via the remote control, they had no problem playing flawlessly from the same PCM stream which has caused some other DACs playback issues, and delivering a great TV and movie sound too, with clear voices from those horn-laden tweeters and a big weighty sound to support action when required. It's a performance that smaller soundbars couldn't hope to match, and we'd pick it over most large bars too.

We would recommend running The Fives *sans grilles* for all uses, but for TV/movie duties especially, as they gain a definite air and edge that benefits dialogue clarity.

From movie watching we had already deduced their penchant for some fine soundstaging and remarkably deep bass, and this was doubly confirmed with music. We enjoyed their vinyl playback, and we connected a MacBook Pro via the USB-B connection and made use of both Roon and Qobuz on the Mac to enjoy a variety of CD-quality and high-res streaming music



Our new (but rarely presented) Editor's Choice award goes to those products which deliver special joy during their visit.

through The Fives. Playing the 24/96 of *Goodbye Yellow Brick Road* we cranked them up to light all but one of the white LEDs, and The Fives delivered a full room-filling experience that was, dare we say it, vinyl-like. The cut-through of the higher frequencies can make music from The Fives wildly exciting. The 1965 Newport recording of Bob Dylan doing *Maggie's Farm* had Bob's voice and Butterworth's knife-edge guitar cutting through a difficult mix. More recent Dylan suited the Klipschs just fine too — his recent Australian tour opener *Things Have Changed* had its mix spread wide and rich, Bob croaky and sardonic while the band just fill in the master's groove.

Things stay tight and bright on axis, but we loved them also off-axis, with a bit of room warming when we'd wander off to do daily deeds. Not that they need warming to deliver bass at levels that can sound positively astounding. We were staggered by the depth and level of bass delivered on the choruses of Amy Shark's *All The Lies About Me* (and much of the rest of the new album). When we later returned to USB we noted almost as much low end emerging from the Giles Martin remix of 'Sgt. Pepper'. It was not excessive; it's not a bloat and doesn't muddy the sound: it just plays bass with a depth you don't expect from speakers 30cm high. Nor do they need the 'Dynamic Bass EQ' option of a bass lift at lower volumes. This is on when they ship, we gather, but they're flatter without it; the EQ pushes some frequencies up (e.g. 60-70Hz) and leaves a hole at 100-110Hz.

## Conclusion

We loved The Fives. They do lack direct network or internet streaming, and we wonder how the combo of TV/HDMI and computer USB will work in most people's homes. But if the connections and the looks do fit your needs, we're darned sure you're going to love their sound.

## SPECS

### Klipsch The Fives

\$1599

**Drivers:** 25mm titanium-dome tweeter with Tractrix horn, 114mm long-throw fibre-composite mid/bass

**Inputs:** 1 x minijack analogue, 1 x RCA line-level/phono, 1 x optical digital, 1 x USB-C, 1 x HDMI ARC Bluetooth (SBC, AAC, aptX HD)

**Outputs:** subwoofer out

**Dimensions (hwd):** 305 x 165mm x 235mm

**Weight:** 5.35/4.85kg (master/slave)

**Contact:** Premium Audio Co.

**Web:** www.klipsch.com.au





## KEF LSX

### wireless hi-fi speakers

The 'mini me' of KEF's wireless Uni-Q-equipped speakers proves anything but mini in its delivery of hi-fi sound.



**K**EF's LS50 Wireless speakers, now in their MkII form (see separate review) proved such a hit with customers and reviewers alike over their first few years that KEF realised there was a potential market further down the price scale, bringing similar attractions to a wider audience. The result was the LSX design, which squeezed the concept and much of the tech of the LS50 Wireless into a new design which roughly halved both the size and price.

But it is "not simply a baby LS50W", we were told when the product launched. The LSX design was also about KEF changing what hi-fi can be. "A product for the 95%, not the 5%", was the catch-cry — raising the quality for those who want simplicity and style.

We also applaud another KEF marketing slogan for the LSX — "Give your music the space it deserves." While some one-box wireless speakers can be paired with a second unit, KEF's LSX is a true stereo system from

the start. You get one master speaker and one slave, requiring a mains cable each but no other connector between; they will connect and share music at 24-bit/48kHz. Or you can use the supplied Ethernet cable between them and they will then share music at the higher level of 24-bit/96kHz.

You can plug sources into them — the master speaker has a full-size optical input, and a minijack analogue input. These might serve to take the sound from your TV, for example, while their wireless abilities can serve your musical needs. They can network via Ethernet or dual-band Wi-Fi, along with Bluetooth direct streaming, supporting the aptX near-CD-quality codec for Android users whose phones support aptX. While Bluetooth remains limited in quality, the network connection will allow streaming of files up to 24-bit/192kHz, though subject to the 48kHz/96kHz transmission between speakers as noted above.

There's a wired subwoofer output so you can connect a powered subwoofer, and a small remote control is also provided.

Another KEF key-phrase for the LSX design was that "You shouldn't have to spend more time learning about a product than using it." We certainly had a dream set-up experience, with everything working first time. There is a KEF Connect app which walks you through the initial connection, then it hands over to a KEF Stream app which gives you access to Spotify Connect and Tidal directly, and files via DLNA from home shares. Apple's AirPlay 2 allows a degree of multiroom use and voice control via Siri, and obviates the Bluetooth spec's lack of the AAC codec to raise quality for owners of Apple devices; AirPlay 2 provides a higher quality anyway.

We had them playing within five minutes of unpacking the speakers. They are small, though not nearly as dinky as the Ruarks — 24cm high, and reassuringly weighty with

all the technology within — the networking circuits, the power modules providing a quoted though unspecified 100W to each speaker, split 30W to the tweeter and 70W to the woofer. They port to the rear, with the port colour varying with your choice of colour on all but the white and





grey finishes, which both boast a startlingly scarlet port. All but the white version come wrapped in fabric from Danish textile manufacturer Kvadrat (white fabric would get too dirty too quickly, KEF explains), nicely patterned on the limited edition Terence Conrad Soundwave edition (\$200 extra), while the ribbed backplate is not a heatsink; the ribs merely provide a design link to the LS50 wireless speakers, we gather, while the real heatsink is internal. If you look closely you'll see that the backplate leaves a small gap at top and bottom, creating an airflow which allows internal heat to rise and exit.

As for positioning, you could just plonk them on a surface, but there are three stand types available, each in black or silver — a P1 desk-pad at \$279 the pair (bottom right image), the nifty B1 wall-mount (below right) for \$379, and proper S1 floorstands at \$699.

### Uni-Q top, folded bottom

If you're wondering about us mentioning woofers and tweeters when only one drive unit is on show, this is KEF's fondest piece of technology — the Uni-Q driver, which places the tweeter inside the larger driver. This is neat both aesthetically and sonically, since with coaxial drivers you can avoid the time alignment issues of separately placed drivers, so not only coaxial but coincident, delivering a time-aligned point source of sound. The effect is to allow a wider sweet spot, or at least a wider area without ill effects to the frequency response. The LSX's version of KEF's Uni-Q driver combines a 19mm aluminium-dome tweeter within a 115mm magnesium/aluminium-alloy mid/bass cone, which ports to the rear through an internal folded port chamber built in three sections, extending into a flared port to the rear.

This goes a long way to explaining the LSX's impressive ability to fill a room with sound. Indeed such was the sonic balance of the LSX that it was immediately apparent that their bass response had been significantly loaded by the use of DSP (digital signal processing — KEF refers to it as a 'Music Integrity Engine'). Most systems lose relative bass strength as level drops, but the LSX keeps the balance tilted for a powerful and musical presentation. The deep three bass notes under Björk's *Hyperballad* rolled out of the LSX pair and energised the room even at medium listening levels, but didn't then overly drown the vocal when we turned things up. More than that, there is hi-fi magic in the Uni-Q drivers; Neil

**"Most systems lose relative bass strength as level drops, but the LSX keeps the balance tilted for a powerful and musical presentation."**

Finn's vocal on the 'Afterglow' version of *Private Universe* was rich and real in a truly presented acoustic space.

In this, however, we would strongly point you to using the Wi-Fi input path rather than Bluetooth, which simply stripped a little joy out of everything — less fizz to Björk's bass, less acoustic around Neil's vocal.

In our first week of casual use we had decided that the LSX's DSP made the bass too lumpy when you turn them up loud. This is true — but only via Bluetooth. From Wi-Fi the bass is more solid, tighter, even with tracks below CD quality. Since the Wi-Fi connection could be used to play tracks and iTunes playlists direct from our iPad Pro (despite Apple supposedly closing off this option for others, including Bluesound), we stuck with

this for the rest of our time with the LSX, and we loved their performance ever thereafter.

The true stereo KEFs with their coaxial drivers deliver a higher level of hi-fi, effective enough at low-medium listening levels from Bluetooth, but far better using the Wi-Fi connection, where they can be entrancingly effective music-makers for such attractive and compact cabinets.

Their frequency balance is especially impressive as casual listening levels, and you can set up different EQ profiles for different inputs, or styles of music, perhaps for different



family members, along with settings for room placement, so as KEF notes, these are "speakers you can put where you want them, not where you're told to put them."

### Conclusion

Those with aptX-compatible Android phones may enjoy better results via Bluetooth than we did from iPad, where there was a clearly audible loss of information when streaming that way. But via Wi-Fi these little speakers completely fulfil KEF's goal of delivering real hi-fi sound, made neat, stylish and easy. Long may they bring fine music to the 95%!

#### SPECS

##### KEF LSX

\$1995

**Drivers:** Uni-Q 19mm aluminium dome inside 115mm magnesium/aluminium-alloy cone

**Inputs:** Optical digital, minijack analogue, Bluetooth with AAC+aptX; AirPlay 2; Ethernet, Wi-Fi

**Outputs:** subwoofer out; master-slave link

**Dimensions (whd):** 240 x 155 x 180mm

**Weight:** 3.6kg (master), 3.5kg (slave)

**Contact:** Advance Audio Australia

**Web:** kefhome.com.au





# DALI Oberon 1 C

**DALI takes a pair of good hi-fi speakers and makes them active and wireless. Easy.**

**D**ALI has not one single wireless active speaker available but three whole ranges of them. This standmount is the most affordable of the stereo pairs, from the Oberon C group which includes a pair of floorstanders and a wireless centre speaker. Higher up there are Rubicon C and Callisto C series, with each set of 'C' active versions based on established passive speaker ranges.

All of them use separate a wireless network preamplifier to connect sources. The one for the two higher ranges is called the Sound Hub, while the Oberon C range introduces a smaller version, the Sound Hub Compact (pictured). Although DALI notes that this speaker series is intended for hi-fi music, the Hub's connections indicate clearly that TV audio is a goal, and that DALI sees its active speakers not only as a convenient way of enjoying established hi-fi speaker designs, but also as alternatives to a soundbar.

So the Sound Hub Compact provides an HDMI ARC socket to play easily from a compatible TV, while two optical inputs provide another TV sound option — one of them is set to automatically power up the

speakers when the TV is turned on. The hub also has a single RCA analogue input pair.

Then there's Bluetooth, which here offers both the AAC codec to raise the quality from Apple devices, plus aptX HD which will elevate Bluetooth from Android phones which support this codec or the lesser aptX. There's a subwoofer output and a USB service port. The Sound Hub Compact then transmits to the speakers using a proprietary 30-bit wireless protocol. There are no physical inputs at all on the speakers themselves except USB servicing.

However, the full Sound Hub will also work with the Oberon 1 C, though it's pricier at \$1299 for the hub itself *and* another \$999 to add the BluOS streaming module which then offers DLNA playback, Spotify Connect, Tidal Connect, Qobuz and other streaming services, along with multiroom and MQA support. The Sound Hub also features a coaxial input and

preamp output over the compact version. So it's tempting, but a big additional cost over the Sound Hub Compact, which is only \$599.

The speakers themselves are largely unchanged from the passive Oberon 1, solid and nicely made, compact enough to fit unobtrusively into most rooms — at 27cm high they're not much larger than KEF's LSX, though they look like more conventional speakers in any of their four finish options — the light oak is pictured above. Their biggest aesthetic statement is provided by the mahogany-coloured 13cm wood-fibre mid/bass cone, which sits below the 29mm soft-dome tweeter. Each unit is fed by a dedicated 50W Class-D amplifier.

Stands are available, as is wall-mounting, thanks to the speakers' rear-panel keyhole slots. The DALIs sound pretty balanced up against a wall, despite the use of a rear





reflex port, but they performed best when placed around 20cm to 30cm away from one, facing straight ahead. There, and with the connection made from the compact hub's analogue inputs, we enjoyed a clear and articulate sound, notably superb with vocals. Tom Odell's vocal-led track *Heal* (streamed from Tidal) came through with clarity and insight, sympathetic to Odell's tender delivery while also keeping a firm hand on the accompanying keys. This midrange insight was one of the passive Oberon 1's highlights, and something the addition of wireless active operation hasn't changed.

There was depth and obvious layering to what is generally an open and precise soundstage — even with denser compositions. With *The Theory Of Everything* by Jóhann Jóhannsson the DALIs displayed an organised presentation of the piano, string and percussion instrumental, while also proving astute in capturing dynamic string surges.

You don't, perhaps, get the full authority or bass volume and depth you would from a physically larger pair of speakers — something that those who need to fill a big room should be aware of. But they have a good go at rip-roaring through pg.lost's *Suffering*, with more than a hint of drive and weight behind the crashing electric guitars and walloping drums. When we play the *Love Theme From The Godfather* by Nino Rota the DALIs not only have plenty of insight — the mandolin unmistakable, the accordion textured — they

grasp what scale there is to the strings and keep things tidy as the piece reaches its climax. They also communicate the dense and crude nature of the production.

These are the first of three speakers in our active group to use a hub for connections. In nearly all cases we felt this complicates the system in both operation and connections; here, for example, if you're using a hub to connect your TV, the wirelessness is almost redundant because the speakers are close by. But we can at least say for the DALIs that during our testing, we didn't experience any connection or latency issues; both set-up and listening were solid.

The DALI Oberon 1 Cs are real speakers, delivering real hi-fi stereo, along with wireless convenience from a remote 'hub' for your sources, TV audio and Bluetooth streaming.

#### SPECS

**DALI Oberon 1 C** \$2199, Hub \$599

**Drivers:** 29mm soft-dome tweeter; 13cm wood-fibre mid/bass cone

**Inputs (compact hub):** 1 x analogue RCA, 2 x optical digital, HDMI, Bluetooth (AAC, aptX HD)

**Dimensions (whd):** 274 × 162 × 234mm

**Weight:** 4.4kg

**Contact:** Ambertech

**Website:** [www.ambertech.com.au](http://www.ambertech.com.au)



#### AQUA La Scala MkII Optologic DAC REVIEW



#### MUSIC HALL MMF-1.5 turntable REVIEW



#### BOWERS & WILKINS 702 Signature REVIEW



#### NAD M33 Streaming DAC Amplifier REVIEW



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# Q Acoustics Q Active 200

Very different, yet rather beguiling; Q Acoustics doesn't merely convert an existing speaker to active wireless operation, but rethinks the breed from scratch.

+

It's rare to encounter something genuinely different in the loudspeaker arena. It's more than a century since Jensen and Pridham created the moving coil speaker, and getting on for seven decades since Edgar Villchur created the acoustic suspension principle. Since then nearly every speaker has put a tweeter and some woofers facing forward in a box. Occasionally someone has drivers firing backwards. But Q Acoustics not only does none of that with the Active 200 speakers, it's introducing the new speaker design not as a conversion from a passive model, as with most contenders here, but as an active model from its genesis. What is the company up to?

## Strange drivers, neat hub

The Q Active's design is certainly a differentiator. The 28cm-high boxes are finished in a lovely matt white (black is also available), extending onto the front baffle, which has just that dark rectangular grille cut-out on one side — a look which seems highly on-trend for today's open and light homes, although different enough to raise eyebrows; we have been unable to erase from our minds the description of one visitor who thought it looked like a smartphone had been stuck on the fascia. Below this is a mirrored 'Q' which, depending on what it reflects, can vary in perception from invisible to grey to black.

Housed inside the front grille are not the expected tweeter and mid/bass woofer, but instead two round, 58mm BMR (balanced mode radiator) drive units. BMRs deliver treble and midrange in combination, the midrange via a normal piston movement of the driver, but the treble via the front flat surface being excited in the manner of the flat-panel surface speakers pioneered by first Mission and then NXT in the 1990s. Noted advantages of BMRs are that they don't require a mid-bass crossover, and that they also radiate sound more widely. But they are rarely used as treble units in critical listening speakers, so it is an interesting choice here.

These are offset to one side on each speaker. Q Acoustics says the asymmetry improves diffraction characteristics, and offers flexibility in positioning. If the two speakers are widely separated, put the drivers on the inside. If close together, widen the sound field by putting them on the outside. You select which is left and which is right using one of two little switches on the back panel; the other has three positions to adjust the EQ to deal with boundary conditions — in a corner less than 0.5m from two walls, or next to one wall (less than 0.5m), or in free space more than 0.5m from any wall. Q Acoustics recommends simply placing the





# group test

## wireless stereo speakers

Active 200 speakers on a flat surface, though you may be attracted by the gorgeous and similarly unusual optional stands, which go for \$799 a pair.

There is a port at the rear of each speaker, but to see the 114mm bass woofer itself you must peer into one of the slits on the sides. Inside the driver can be seen firing backwards onto an omnidirectional reflector which is pierced by a vertical rib, so that the speaker's energy is firing outwards from the slots on both sides of each speaker. (The floorstanding Active 400 repeats the arrangement with a second driver and pair of side slots the same distance from the bottom of the speaker.)

So it's all pretty weird as far as the drivers go. The connections are rather easier to understand, because there are none on the speaker, other than a figure-of-eight power socket and a USB-A slot which is for servicing only. Everything else flows from the included transmitter unit. This is, compared with some others, gloriously straightforward, and for our money, perfectly provisioned, with one analogue input on RCA sockets, one optical digital input, and an HDMI socket with ARC to play sound back from your TV. The analogue input can be switched to phono status, able then to play from a turntable with a moving magnet cartridge, no phono stage required. There's also a subwoofer output, should you feel the need to supplement the deep end.

All signals are sent wirelessly from the hub to both speakers simultaneously (no master/slave arrangement) as 24-bit/96kHz signals

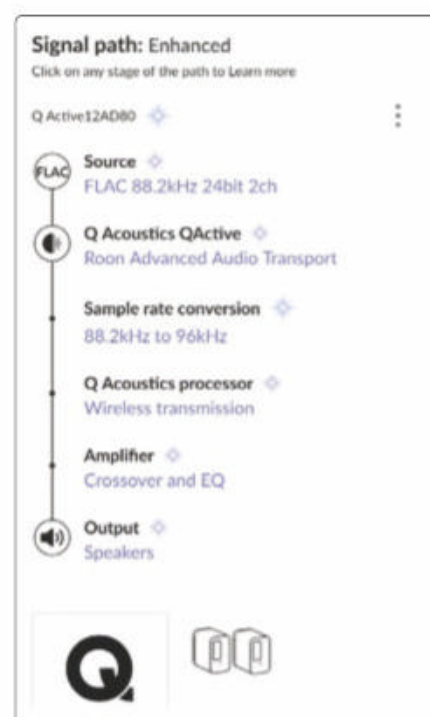


▲▼ The Q Active hub offers nicely versatile connections, with an analogue input switchable between line-level and moving-magnet phono, one optical and one HDMI ARC connection suitable for TV sound, plus Bluetooth. When networked via Ethernet or Wi-Fi it can also stream from Spotify Connect, any Chromecast-enabled app, via AirPlay 2, using a third-party UPnP app, or using Roon's paid software.



over a 5GHz wireless connection. Imagine then a minimalist Q Active 200 system, with these modernist speakers sitting either side of a TV, with a turntable to one side. Nice. What about your streaming music? Plenty of options there. The hub connects to your network via Ethernet or Wi-Fi, enabling built-in Spotify Connect (just use your usual Spotify app and select the Q Active 200s as the output). There's also Chromecast inside, able to receive from any app that supports it, and addressable from the Google Home ecosystem. (If you're more an Alexa user, there is a different version of the hub which swaps out Google for Alexa; this is not available yet, but coming, we told.) Then there's Apple AirPlay 2, receiving from any Mac or iOS device.

All that will cover services like internet radio, Amazon Music, Apple Music, Deezer, Qobuz and Tidal from their native apps. Then there's UPnP for networking streaming (bring your own UPnP app), able to receive up to 32-bit/192kHz (which subsequently gets downsampled to 24-bit/96kHz for transmission to the speakers). You can use Roon, if you have that paid software; the hub is fully Roon Ready. And there's Bluetooth too, though limited to the base-level SBC codec, but with so many other options for both iOS and Android users, we're not sure why you'd be bothering with Bluetooth at all.



## Listening

All this makes for the most comprehensive and complete hub of the group here — and all without the need for a dedicated app. Our only note would be that most systems we can imagine will position the hub very close to the speakers, rendering the hub-to-speaker wireless connection somewhat unnecessary. As with some of the others here, if there were an option to hardwire from hub to speakers to achieve even higher quality, we'd gladly use it.

But set-up was quick enough, with our TV and turntable plugged in, and our

digital music streaming. Bonus points for a physical remote control which also selects inputs on the hub, though the hub tends to switch automatically anyway, auto-sensing an active input. There's a strip of touch buttons across the rear of each speaker's top panel, which more or less mirrors the remote control, too. Their communication with the hub introduces a slight delay in the operation of both, so it feels initially stodgy, but you soon get the hang of it.

Besides, you don't need the physical controls often, as music will likely be flowing under app control. And from the first tune these speakers were clearly doing good things despite — or because of — their unusual set-up. We started off playing from the Qobuz app on a Mac, capable of 24/192 but limited to CD quality by the AirPlay connection we made. And realising there was no way to



confirm what quality the Q Acoustics system was receiving, we switched to Roon, where we could check this with Roon's excellent quality-check pop-up. So while Ry Cooder & VM Bhatt were sounding nicely spacious as they played *Ganges Delta Blues*, the file was streaming at 88.2kHz across our network, then being converted to 96kHz by the hub for transmission to the speakers (see screengrab opposite). It's not ideal, a non-integer scaling, but with plenty of bits to spare it didn't seem to affect the level of detail the Q Active 200s were delivering in a nicely room-filling presentation, if lacking a little of the realism we know this album can deliver at its best.

Better results still with Stockfish's recording of the Blue Chamber Quartet playing Chick Corea's 'Children's Songs': those rear bass drivers were underpinning the sound nicely, while the BMRs were crisp and clean on the combined piano and glockenspiel lines. As we played on, we found the strengths of these speakers came to the fore with open and spacious recordings, whether acoustic or electronic, and at levels anywhere from low up to medium-high. On the title track of 'Buena Vista Social Club' (24/96 all the way, and a very different, more subtle mix to that on the CD-quality standard release), the piano was nicely located with a discernable room acoustic off to the left, while the upright bass was solid if not entirely full in the centre, percussion details off to the right, and Ry's slide guitar almost inaudibly masked in a deep position back in the soundstage.

Crowded House's new track *Playing With Fire* (24-bit from Tidal) sounded great up to medium-high levels, though its layers started to congest if we went much louder, as we often do like to do during critical listening. When the zingy guitars heralded the middle eight where the mix simplifies, the sound opened up beautifully, then closed up again when back to the more complex stuff. This pattern repeated at volume; Coldplay's *Arabesque* (24/96 from Qobuz) played deep and crisply enough at a medium level,

but as we turned it up the layers collapsed into something more flat and lumpy.

If you have a Google Assistant device in the room, you can quickly enjoy voice control of playback. The Google Home app linked the Q Active 200s and renamed them as 'Living Room speakers'. Thereafter all that was required was 'Hey Google, play music in the living room', and the Q Acoustics would jump into life and play. 'Hey Google turn it up', pausing, next track, all worked perfectly. The lower-res Spotify was notably brasher, but for daily music at medium levels this is a wildly convenient way to have music at your call.

We noted the hub tended to shut down quite quickly when transmission stopped, making a small electronic sigh as it closed, doing this sometimes even between tracks if Roon was taking its time sending them over.

We should also note that this was one of the speakers where our TV audio (from a Samsung Q950TS) proved incompatible with either the HDMI ARC or optical, sounding OK but with regular sync drop-outs, often every 4.5 seconds. Q Acoustics acknowledges

the problem with wayward digital outputs from TVs (see comment p8), noting some LG models in its FAQs as being problematic, and replying to us that "it does seem to affect only specific models across a variety of manufacturers". There's really no way to know until you plug up, so if TV audio is important to you, perhaps ask your dealer for a loan before purchase to check compatibility. This issue is not unique to Q Acoustics, and might more reasonably be blamed on the TVs — however, you're unlikely to replace a TV because it doesn't work with your speakers, rather than the other way around.

## Conclusion

We loved the Q Active hub and its many ways to play music. And we enjoyed the novel design of the Active 200s, though repeatedly we found them challenged when playing complex music at high levels. Up to medium-high playback, however, their convenience, positioning versatility, and undoubted style is likely to please many users.

### SPECS

**Q Acoustics Q Active 200** \$3299 inc. hub

**Drivers:** 2 x 58mm BMR treble/mid, 1 x 114mm bass

**Inputs (hub):** 1 x analogue RCA (line-level/phono), 1 x optical digital, HDMI ARC, Bluetooth (SBC), Chromecast, AirPlay 2, UPnP, Roon Ready

**Outputs (hub):** subwoofer out

**Dimensions (whd):** 284 x 170 x 290mm

**Weight:** 7.5kg

**Contact:** BusiSoft AV

**Website:** www.busisoft.com.au





## group test

wireless stereo speakers

# ELAC Navis ARB-51

powered bookshelf speakers



Where many wireless active speakers are all about receiving the signal wirelessly so you can keep things exceedingly neat up front, ELAC has gone a different way. You *could* go wireless here, using one of ELAC's transmitter boxes. But you may not thereby enjoy the very best these speakers have to offer. For that, you should give them an analogue input, either RCA unbalanced or XLR balanced. Because their designer, the invariably impressive Andrew Jones, has kept those inputs entirely analogue, free from DSP right through the internal amplification and on to the drivers. In so doing, Jones has delivered a thoroughly pure and magnificent-sounding active speaker — which can work wirelessly, if you need it to.

### Equipment

Germany's ELAC is best known today for its hi-fi speakers, award-winning subwoofers and more. But the company's earliest roots were actually in sonar, and in hi-fi's golden years ELAC was known for its superb turntables and receivers, before getting more into speakers in the 1980s. In more recent years its electronics have been in resurgence again.

So it is well-placed now to combine its electronics and speaker expertise in an active speaker. The Navis concept is available in a floorstander, the ARF-51, but it is the stand-

**They play wirelessly, but it's a whole lot easier if you don't, and you'll then get the best from these brilliant speakers.**

mount ARB-51 which is perhaps the more attractive proposition, an acceptable 35cm high, our review pair resplendent in a smooth white gloss which tapers away, physically and chromatically, to a dark grey base which at the rear takes the mains input for each speaker, nicely isolating the power section from the two aforementioned signal inputs above. Dedicated stands are available, the L80 model, priced at \$695 the pair.

And unusually it's a three-way stand-mounter, where the 25mm soft-dome tweeter is concentrically positioned in the centre of the midrange 102mm (four-inch) aluminium driver, with a 133mm aluminium bass cone below, with the crossover points at 2.2kHz and 260Hz. The positioning of the tweeter within the midrange aids imaging since those drivers present effectively a combined point source — Andrew Jones, of course, cut his teeth at KEF, where the same principle is harnessed in their Uni-Q technology.

The Navis is rear-ported, and the strip below the port has not only the inputs but an initially bewildering array of little switches: seven in all, and for each speaker, since unlike many active speakers there is no 'master' and

'slave'; the two are identical and you use the first of these switches to allocate left and right position for each speaker.

Another three-position switch selects between the RCA input, the XLR input, or the 'AirX2' wireless input. Three more three-position switches allow you to tailor the output of each driver 1dB up or down, and individually for each speaker; it's a surprise that a designer of Andrew Jones' confidence and experience (Celestion, KEF, Infinity, Pioneer and its high-end TAD brand) would let you mess with his preferred tuning, but it's described mainly in terms of room correction. The bass switch actually flips between +1dB, 0, or -4dB, the last position being in case you have to place the speakers closer to the room boundaries. Jones wisely suggests toeing them in to create a perfect triangle, to make the most of those coincident drivers.

The final switches are a gain selector on the inputs, and a high-pass filter switch to be used if you add a subwoofer to the system, with three options: flat, 60Hz or 80Hz.

Inside each speaker is a 'Tri-Amp Pure Analog Amplifier', essentially three separate amps, one for each driver: a 160W BASH AB



amplifier for the woofer, a 100-watt BASH AB amplifier for the midrange, and a 40-watt Class-AB amplifier for the tweeter. A BASH amplifier as we understand it is actually a Class-D circuit feeding rapidly-scalable pulsed power to a Class-AB amplifier (replacing the traditional power supply), thus removing the need for the output filter, yet keeping the efficiency high. Not only does this all mean a whacking 300W of power on tap for each channel, the combination delivers audiophile-level specs like 110dBA signal-to-noise ratio and a 100µV noise floor.

## Listening

And we'll say from the off that these were simply superb-sounding speakers, capable of a scale and room-filling ability you simply don't expect from a standmount design, even a substantial one like the Navis. The inherent standmount advantages of control and precision were also present in abundance, with imaging a particular highlight. Yet they were also notably capable of controlled yet stomach-resonating bass.

They absolutely nailed Billie Eilish's *bad guy*, which runs a deliberately muffled kick drum and bass for the first verse, against which her layered vocals stand out in three-dimensional relief; this track both sparkled and slammed under the combination here of pinpoint imaging from the ELAC's concentric drivers plus the extension available from the bass driver. It's notable in the specs that the lower point of the frequency range quoted for the standmount Navis at 44Hz is just 1Hz above that quoted for the floorstanding version, which shares the same power and the same drivers, but trebling up on the bass units. Further, the envelope for the frequency response isn't stated but we can attest to significant output in the roll-off below the 44Hz, with a sweep indicating content rising from the low 30s of hertz up to a little dip around 110Hz-120Hz, then outstanding flat to the top, which is quoted at a more-than-healthy 28kHz.

This impressive bass performance was again in evidence when we moved from Eilish's dark electropop to the dreamy *Musk* from Melbourne's Tash Sultan, in which the bass guitar groove dominating the opening segment was in solid focus from the top to its bottom E, microdetailed in the edginess of strings on its slides, and impeccably imaged, a true portrait of a bass guitar, and in scale far more the presentation we'd expect of a floorstander than a standmount. There's a lot going on in this song once the groove opens up, but the ELACs took it all in their stride, keeping it both separated and together, even effectively lifting the left-channel processed trumpet above the mix into its own little acoustic. Mmm, nice.

**“The ELAC Navis pair proved superb-sounding speakers, capable of a scale and room-filling ability you simply don't expect from a standmount design...”**

Moving along to classic rock, the ELACs resisted the temptation towards extravagance which the Stones themselves imparted to *She's A Rainbow* and most of the rest of the 'Satanic Majesties' album from whence it came. The ELACs rather revelled in the ping-pong presentation — Mick left, harmonies right, band chugging along confidently in the centre until the madly compressed piano part takes its place for the orchestral break. It all emerged sounding just as it should — a cartoony presentation of a bunch of hippies trying a tad too hard to 'do a Sgt Pepper'. And while there was a level at which some of the track's edginess prevented us turning it up further, that was pretty darned loud.

And with better recordings, more purely made and mixed, such artificial volume

restraints were removed. We enjoyed Ry Cooder and VM Bhatt's *Ganges Delta Blues*, first in 320k AAC from Qobuz, then remembering we have our own 88.2k version, and playing that at a level which made the missus leave, but which was clearly free of distortion (the Water Lily Acoustics recording is exceptional) even playing at this level where the decay of Joachim Cooder's dumbek was audibly running for a full three seconds behind the two masters' duelling fretwork.

Roon, clever software that it is, shuffled straight into the Ry Cooder collaboration with Ali Farka Toure, 'Talking Timbuktu', and we'd so much forgotten how remarkable this recording is that we had to play it all the way through. Its soundstage was equally impressive through the ELACs and we were

### Lots of switches

You can adjust the response of each frequency band using three-way switches to the rear. The final version offers ±1dB for treble and midrange, and +1/-4dB for the bass, this last being for placement near room boundaries.

### Inputs

The balanced and unbalanced analogue inputs provide the purest path, but you can also select ELAC's AirX<sup>2</sup> wireless transmission from one of its hubs.





# group test

## wireless stereo speakers

able to set levels to stun without the slightest hint of effort from either amps or drivers. (The missus had by this point left to do some gardening, and said she was enjoying it perfectly well from out there.)

### Going wireless

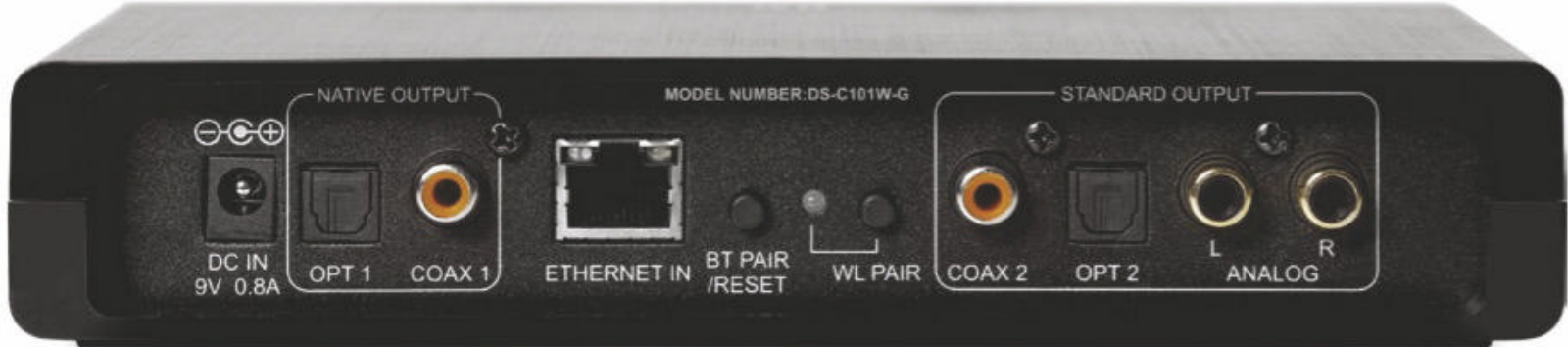
All this listening was performed using the analogue inputs, specifically the XLR balanced inputs, running from a connected preamp. This provides the purest connection possible and, as noted, is fully analogue, free of the digital signal processing used in the vast majority of active speakers.

Then there is wireless operation, and with this comes an examination of the various ways you might choose to connect the ELACs to whatever sources you wish to play. We concluded that it's far easier if you stick with a preamp and the analogue inputs — but ELAC's AirX<sup>2</sup> CD-quality wireless transmission does offer other options.

ELAC offers two boxes which can link to the Navis speakers. One is the Air-X<sup>2</sup>TW Wireless Transmitter, which retails at \$295. This is simplicity itself — just a pair of RCA line-level inputs on a small box which then sends the signal wirelessly to the speakers. So you could send wirelessly (digitised to 16-bit/44.1kHz) from a preamp to the Navis's wireless input. But as noted, you'd be far better to plug cables straight into the speakers unless you really can't co-locate your hi-fi equipment, nor run cables between them.

Second is the larger \$699 Discovery Connect box (DS-C101W-G), which requires some getting your head around. It delivers app-controlled operation of Spotify Connect, as well as AirPlay and Bluetooth and, increasingly useful, Roon Readiness. All these it can send via AirX<sup>2</sup> to the Navis speakers.

We assumed it would also have inputs, into which we might plug sources, including perhaps optical from a TV or media player so the speakers could flank a TV, as is a common enough use for active speakers. But while there are two sets of optical and coaxial sockets, plus one pair of analogue sockets,



▲ The optional \$699 DS-C101W Discover Connect Box, which has no inputs but lots of outputs you don't need, plus app-controlled operation of Spotify Connect, as well as AirPlay and Bluetooth, and a Roon end-point.

none of these are inputs. They are all outputs — two sets, in fact, capable of either native or downsampled digital output, and only relevant if you're plugging the box into a different amplifier entirely, or decide to plug the analogue outputs direct into the speakers.

So the Discovery Connect box doesn't allow any additional device to be wirelessly connected to the speakers, in the manner of most such boxes (for example, the DALI and Q Acoustics speakers here). We never did find an easy way to play TV audio through the Navises. Clearly, for analogue input into the Navises, you need a preamplifier with a volume control, and balanced outputs if you can get 'em. So we reckon for streaming you'd be better off having a separate streamer plugged into the preamp, or a preamp which has streaming built in. For a while

we used the Cambridge Audio DACmagic 200 M as a preamp, its balanced outputs switched to variable so we could use its volume knob. Then as chance would have it, Naim's Uniti Atom HE arrived — a streaming preamp with balanced outputs, an optical input for our TV, analogue inputs for our turntable — a perfect companion here. And wow, that was one compact, smart, full-on hi-fi system to die for. Not cheap, to add the \$4999 Naim preamp, but a brilliant solution in every way, from analogue turntable playback to Roon streaming.

Having said that, we did set up the Discovery Connect to play via AirX<sup>2</sup> into the wireless input of the Navises, which requires pairing each speaker with the DS-C101, then addressing that unit from Spotify, and we had good music flowing very quickly. The bit-rate is limited to 16-bit/44.1kHz,

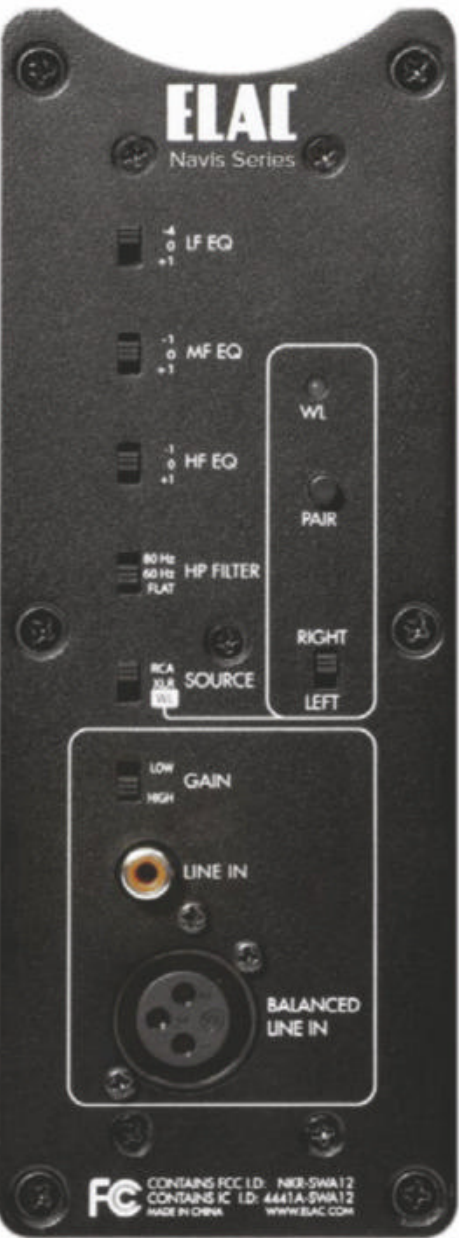
and switching from analogue to wireless inputs requires fiddling round the back of both speakers to switch the little switches. This is exacerbated by the speakers having no remote control, either to switch sources in this way or to control volume — because the Navises assume they'll be under a preamplifier's control. So when streaming from the Discovery Connect we were limited to control from our smart device, including the underwhelming app which is supposed to be called "the Discovery Connect App" but which we finally found in the Australian Apple store under the more prosaic listing of "DS-C101".

Unfortunately, halfway through the first wirelessly-sent song, the right speaker faded then went off. We switched to AirPlay from an iPad Pro, and still only the left channel played. After rebooting everything, we couldn't get them to pair at all. So we had little time in which to judge AirX<sup>2</sup> streaming sonically.

But you know what? We'd say don't bother with the wireless side of the ELACs at all. Give them analogue inputs direct from a good preamp, and let them play at their best.

### Conclusion

The Elac Navis ARB-51 is a very different active speaker. For one thing, you need a preamplifier into which to plug your sources. And until ELAC releases a wireless box with inputs, we'd say stick to the cables here. Connect to the analogue inputs, connecting sources and streaming to your upstream preamplifier. Because these are absolutely terrific analogue active standmount speakers.



SPECS	
<b>ELAC Navis ARB-51</b>	\$3795
<b>Speaker type:</b> 3-way powered	
<b>Inputs:</b> 1 x RCA, 1 x XLR, AirX <sup>2</sup> Wireless	
<b>Drivers:</b> 25mm soft-dome tweeter within 4-inch aluminium midrange, 5-1/4" aluminium woofer	
<b>Power:</b> 160W + 100W + 40W	
<b>Dimensions:</b> 34.5 x 19 x 24cm	
<b>Weight:</b> 8kg each	
<b>Contact:</b> Synergy Audio-Visual	
<b>Website:</b> www.synergyaudio.com	



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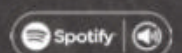


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# KEF LS50 Wireless II

wireless hi-fi speakers



**KEF takes its successful LS50 Wireless and makes cunning revisions to deliver impressive sonic improvements.**

+

**T**he original LS50 Wireless speakers were almost universally praised, and rightly so — they pounced on the clear need for higher levels of hi-fi in wireless audio. Taking the then-passive LS50s with their Uni-Q combined driver array, KEF added amplification, streaming and smart operation. With modern minimalist looks — and with various special editions too — they were as close to a guaranteed success as the hi-fi industry has seen.

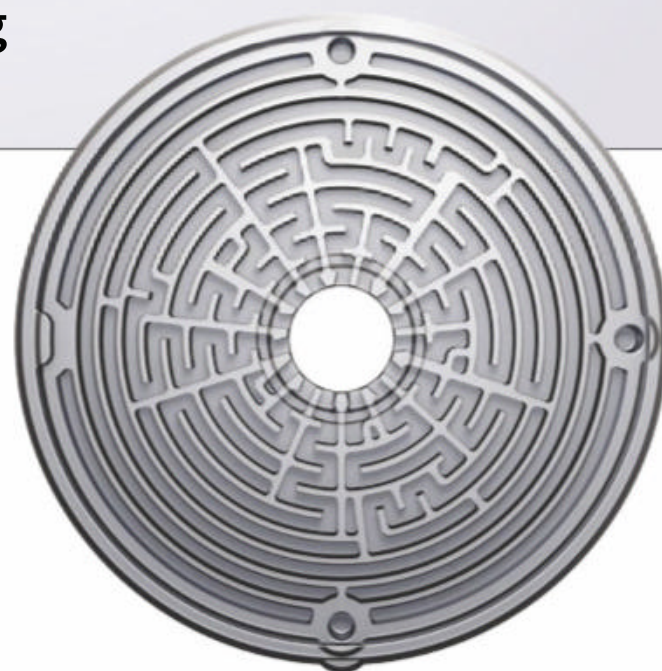
Now comes the sequel, the LS50 Wireless II, modestly described as “the perfect all-in-one speaker system”. KEF is going here for easier integration — improving the simplicity and reliability of use without losing any performance. So the Wi-Fi networking now has mesh-network frequency-hopping abilities for improved robustness. Gone are any of the control app hiccups which sometimes occurred with the originals; the Wireless II comes with a new and improved KEF Connect app, which KEF has spent two years re-engineering from scratch, and which has some quaintly British touches — the streaming options for example, are listed as

“Music in the Cloud”. These include Tidal, Qobuz, Amazon Music, Deezer and Spotify, as well as internet radio and UPnP serving of files available on your home network. In China, TenCent’s freemium music service QQ Music will also be available.

Meanwhile peak file support here is 24-bit/384kHz, with DSD up to DSD256, and MQA decoding, including for Tidal Masters.

Indeed you might hardly need the new app considering how many ways the speakers make themselves available: the LS50 Wireless IIs support AirPlay 2, Google Chromecast and Bluetooth, and are also Roon Ready.

The streaming system was similarly revised over the same time period, KEF choosing to base it on WiSA — simply on merit, they told us, because it offered the best point-to-point high-res streaming available. Gone now, if you wish, is the cable that was required between the two speakers, though as with the LSX you can have one if you like, an included Ethernet cable which raises native playback to 24-bit/192kHz. Leave things wireless and they’ll still work at 24-bit/96kHz, which really should be enough for this level of hi-fi.



Furthermore, KEF has squeezed even more performance out of the familiar chassis and Uni-Q driver arrangement through the introduction of a new KEF innovation called Metamaterial Absorption Technology (pictured above).

Whassat then? Well a ‘metamaterial’, as KEF itself defines in its white paper, is a synthetic material with properties that cannot be found in nature. What metamaterial does KEF use here? ABS plastic which has been moulded into a shape that is an almost ideal broadband absorber. While we’d argue with



# group test

## wireless stereo speakers

the use of the word metamaterial in this context (see comment p8), this absorber is a brilliant idea: it takes the concept used in room acoustics, where absorbers have different lengthed channels to absorb different frequencies. KEF and a partner company has designed what looks like a maze, but is actually 30 separate tubes in two layers. This goes behind the Uni-Q assembly, and KEF says it almost entirely absorbs the back energy from that driver — 98% of the energy above 680Hz. So it's clever, innovative, and looks very cool, if slightly worryingly in its maze design for fans of the *Westworld* TV series.

As for socketry, the previous USB-B connection for computers has gone, but KEF has hardly shortchanged owners, replacing it with an HDMI eARC socket to make it more TV-friendly. Alongside this are coaxial (max 24-bit/192kHz), optical (max 24-bit/96kHz) and minijack analogue inputs, plus a subwoofer output — though if you're looking to add a sub, the perfect partner might be KEF's new and remarkably small Uni-Core KC62 subwoofer, which will make the connection wirelessly, while the main speakers have a delay switch to keep them perfectly in sync. Will KEF expand further into full surround, perhaps using an LSX-size speaker for rears? KEF will, it says, consider this based on user feedback, but with the WiSA platform being used, it's certainly now within the existing abilities of the LS50 Wireless II.

The quoted power supplied by the built-in amplifiers, developed in-house by KEF, are 100W of Class AB for the tweeter, and 280W of Class D for the mid/bass drivers.

Outside little has changed. And why fix it if it ain't broke? The speakers look fabulous with their Uni-Q driver array and range of finishes — Carbon Black, Titanium Grey, Mineral White and Crimson Red

Special Edition. Threaded inserts in each corner of the base allow them to lock onto the new KEF S2 Floor Stands (\$800/pr).

But while they look just like the previous versions, they really do sound significantly improved. The effect of that MAT absorbtion is evident in the cleanliness of the treble; indeed the difference in purity can be heard across the frequency range. Mids are cleaner-cut as well, and the bass more defined, their extra refinement making the originals almost sound a touch crude. The whole presentation has been opened out, with the extra space not



only filled with subtler, more precise detail, but also allowing for greater instrument separation that makes music sound less congested in comparison with the originals.

So listening to Adrienne Lenker's *Symbol* became a more captivating affair through the Wireless IIs. The extra space between her vocal and the strings was notable contrast to the originals, where it could sound as though they were fighting against one another for attention. That extra spaciousness isn't at the expense of cohesiveness either; that remains a

baseline and cutting rap, while highlighting this track's clinical production.

While KEF has made plenty of tweaks here besides the sound-absorbing maze behind the Uni-Q array, it's hard not to credit the specific improvements of clarity to this clever advance. We look forward to hearing more products using the technology in the future. Meanwhile KEF has another barnstorming LS50-based product in its stable — and probably a tribe of original LS50 Wireless owners feeling like they really need to hear this new model....



hallmark of the Uni-Q driver's point-source tweeter-inside-the-mid design. The new KEFs laid bare more intricacies in the guitar work too, while disclosing the distinctive fragilities in her vocal.

Similar sharpness and detail were evident as we switched to Peter Broderick's *Moment*, the LS50 Wireless IIs more deftly defining the start and finish of notes.

With Mac Miller's *What's The Use?* the Wireless IIs showed off improved punch and agility, as well as their enhanced subtlety. The clarity and cleanliness enlivened the tuneful

### SPECS

**KEF LS50 Wireless II** \$4295

**Drivers:** Uni-Q array of 25mm vented aluminium dome, 130 mm aluminium mid/bass

**Inputs:** HDMI eARC, minijack analogue, optical digital, coaxial digital, Ethernet, Bluetooth, AirPlay 2, Chromecast, Roon Ready

**Outputs:** subwoofer, interspeaker connections

**Dimensions (hwd):** 305 x 200 x 311mm

**Weight:** 20.1kg (both)

**Contact:** Advance Audio Australia

**Web:** kefhome.com.au



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## group test

wireless stereo speakers

Recent changes have improved ease of use for the Formation stereo pair, while their sound quality was never in question.



# Bowers & Wilkins Formation Duo

When Bowers & Wilkins released the Duo wireless speakers as the top offering in its Formation suite of wireless multiroom products, we liked them very much, and gave them a Sound+Image award. But we did highlight two potential issues for users. First was that they have no physical inputs at all (except for power); these are entirely wireless speakers. Second was they didn't much help with the streaming either — the Home app which controls the speakers just helps set them up, then aside from onboard Spotify Connect it leaves you to work out your own way to stream, even going so far as to suggest Roon as the best solution, requiring additional and regular outlay.

But both these problems have since been addressed. The new Music app (pictured right) has arrived to offer far more in the way of direct access to music, including Tidal and Qobuz. And currently, if you buy a pair of Duos, you can get a Formation Audio preamplifier as a bonus — delivering two analogue and one optical digital inputs with which the Duo can connect. Hoorah. Sorted.

The Formation series, then, offers Bowers & Wilkins' own wireless multiroom platform, capable of playing and streaming music in each room individually, or the same music to all connected rooms. Yet notably, like some of those competitors (and perhaps more than any of them), B&W is pushing to a higher quality, growing the pie upwards, as it were, perhaps following the maxim of company founder John Bowers when he said that "If you can make a better product, you can sell it."

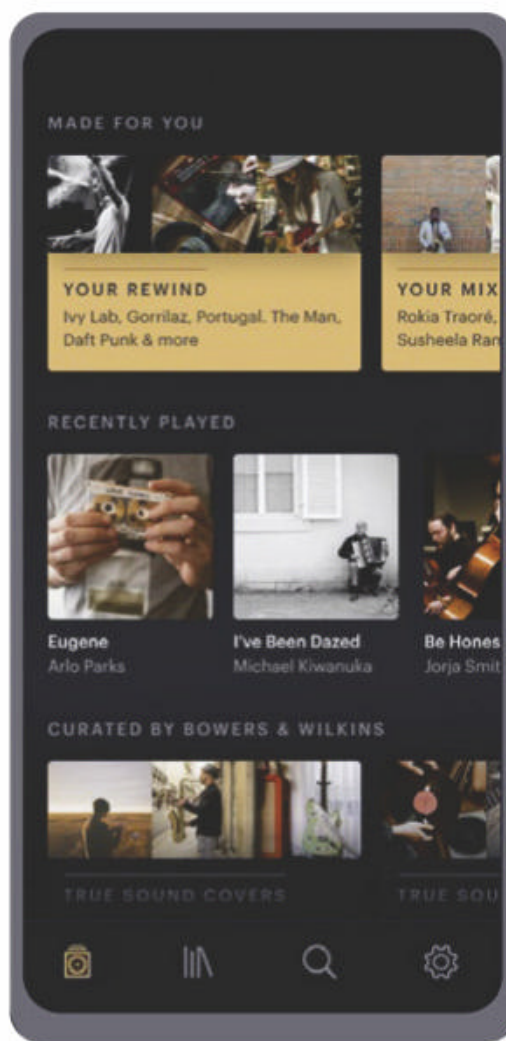
So the wireless connection between Formation products uses a bespoke mesh network

operating outside the usual Wi-Fi frequencies, with each product dynamically choosing the optimal path in a not dissimilar way to the recent spate of Wi-Fi mesh networking systems. Connectivity options for playback include traditional home networking via Ethernet and Wi-Fi, Apple's AirPlay 2, Spotify Connect, Roon readiness, and Bluetooth

aptX HD streaming.

And in appearance the Duos farm certain key company attributes. They have the distinctive 'tweeter-on-top' borrowed from B&W's 700 Series and others, the 25mm carbon-dome tweeters mounted in a Nautilus-tubed enclosure which flops over the curved top of the main cabinet, decoupling the tweeter from any vibrations in that lower cabinet, itself matrix-braced against such movement.

Behind the big circular grille (a wonder of concentrically-punched circles) is a 165mm Continuum bass/midrange driver, B&W's favoured midrange cone material — it first appeared



◀ **MUSIC APP:** a second app has made music streaming far easier with the Duos.



on the 802 D3, released in 2015. These silver-white woven cones have already trickled down all the way to the 600 Series, though the company remains tight-lipped as to what Continuum actually is, other than being its own synthetic weave, with an aluminium coating that gives it the shiny silver finish.

As for the Duo's cabinets, we had thought from early publicity images that they looked worrying like a giant plastic computer speaker peering out like a periscope from the good ship B&W. But when you actually see the Duos, especially on their bespoke stands (pictured right), the effect is more luxurious. The decoupled tweeter chamber (it wobbles if you flick it) on the pair we listened to is finished in a gloss black, which contrasts with the matte deep grey of the main cabinet (they also come in white), which is formed from two sections that meet in a long curve back around and behind the continuous top and front section. The rear piece has four small slots through it, which we presume to be for ventilation rather than porting, since these are specified as sealed cabinets. The main pieces look like moulded plastic but are actually Formi, a composite developed around a decade ago using virgin polypropylene mixed with 20-50% natural and renewable cellulose fibre sourced from sustainable managed forests. The resulting granules can be injection-moulded in the same way as standard plastics. Formi has claims to strength and stiffness well beyond those of more common thermoplastics, while being cheaper than engineering plastics such as ABS.

This matte moulded material mates perfectly with the Duos' bespoke fillable stands (as pictured above right, \$1199) — indeed we at first thought the bottom of the speaker to be part of the stand, until we realised the buttonry was on that section. The stands can be spiked to the carpet, and although other stands can be used (or none, for benched use of the Duos), it makes sense in performance terms to have the whole designed package working as intended.

We must note that we didn't have the Duos at home for our listening; instead we visited B&W Australia's headquarters, left alone for an hour or two to bang through our favourite test tracks. Thus we didn't experience set-up (though we did move them around a bit, and found we enjoyed close listening the best); nor did we feed them the highest of resolutions or the purest of signals as all our listening was done via AirPlay from music stored on our iPhone or streamed from our device using Spotify and Tidal accounts.

Mind you, that's likely how a great many users will likely listen to the Duos. And the music sounded good from the first tune. Lou Reed's *Walk on the Wild Side* showed the Duo's strengths at delivering detail, both in

**“What the Formation Duos achieve is to take a multiroom system to a higher plane in itself; you'll never get sound like this from Sonos...”**



a well-portrayed shaping of Herbie Flowers' twinned bass guitars and in the clarity of the panning and reverb on the singers during their entry at the end of the second verse.

As for depth, we didn't initially feel quite the weight implied by the published 25Hz lower response (which we think can be taken as at least a -6dB figure); nevertheless there was something of the ultra-low bass in Neil Young's *Walk With Me* coming through, and that's in the 30s of hertz, so still a respectable performance, and once we found a neutral listening position in the room, the overall sound was impressively balanced (a sweep showed remarkable flatness up to 200Hz).

There is the option to wirelessly link in the 'Formation Bass' subwoofer to play with the Duos, but a spin through tracks by Tyler The Creator soon reassured us of the Duo's own qualifications in the bass department.

And there is none of the feel of heavy EQ adjustment via digital signal processing. There is some of that going on here, but B&W has kept the Duos sounding natural rather than artificial, and without the characteristic of a pushed bottom and a dip above which occurs in so many wireless speakers.

Chick Corea's *Australia* concerto was a delight in several ways — for the natural spread of its orchestral elements across and into the soundstage, for the dynamics which burst forth as the piece progressed, and for the impressive reality of the central drum work — the transient crack of a rim shot, the long audible extension of the ride cymbal decay.

This is where the Duos started sounding like something beyond a mere multiroom system product, rather a piece of real hi-fi.

Orchestral tones were well handled, and yes we loaded Diana Krall (with Michael Bublé no less) on *Alone Again Naturally* from 'Wallflower' to check the Duos' treatment of female vocal, which proved to be another highlight. Ms Krall was velvety real, present and correct, as was Joni Mitchell on the later version of *Both Sides Now*, and also kd lang on our favourite tester of *The Air That I Breathe*. Their tone was also shown to be impeccable when we played spoken word, judging that from our own recordings of known voices.

What the Duos achieve is to take a multiroom system to a higher plane in itself (you'll never get sound like this from Sonos!)/ While other platforms can power high-end speakers, to our knowledge only Formation has such a high-end pair of active speakers directly on the receiving end of your app.

#### SPECS

#### Bowers & Wilkins Formation Duo

\$6400

**Drive units:** 25mm carbon-dome tweeter, 165mm Continuum mid-bass

**Inputs:** Ethernet, Wi-Fi, AirPlay 2, Spotify Connect, Roon, Bluetooth (SBC, AAC, aptX HD)

**Dimensions (hwd):** 395 × 197 × 305mm

**Weight:** 10.6kg

**Contact:** Bowers & Wilkins Australia

**Web:** [www.bowerswilkins.com/net](http://www.bowerswilkins.com/net)



hi-fi

vinyl phono stage



**Musical Fidelity**  
M3x Vinyl  
phono stage

# Respect your vinyl

The best gift you can give your turntable is a high-quality phono stage which will treat its output with respect. Musical Fidelity delivers a fine example in its new M3x Vinyl.

## SUMMARY

### Musical Fidelity M3x Vinyl

Price: \$2499

- + Excellent sonic performance
- + Versatility of settings
- + Discrete component build
- Only one set of inputs

The Musical Fidelity M3x Vinyl phono stage is a first for Musical Fidelity in more than one way. To begin with it's the first phono stage in the company's M3 Series, which Musical Fidelity promotes using the catch-phrase "Great-looking, superb-sounding hi-fi doesn't have to cost a fortune."

The M3x Vinyl is also the first Musical Fidelity component to be built entirely in countries in the European Union, rather than its long-term manufacturing base in Taiwan. In 2018 Anthony Michaelson sold Musical Fidelity to his good friend Heinz Lichtenegger, the owner of Pro-Ject, who with his wife Jozefina (who owns European Audio Team) has multiple manufacturing facilities in the EU. So the M3x Vinyl is the first Musical Fidelity product to be built in one of these facilities. It remains to be seen whether Lichtenegger and his team will start manufacturing other Musical Fidelity components in the EU as well.

The M3x Vinyl is also almost the first phono stage Musical Fidelity has manufactured that does not use op-amps (the first was the M6x Vinyl), instead using discrete components — separate resistors, capacitors, transistors and so on — in the place of op-amps. This is rather the opposite of what's happening in other hi-fi components, so we asked Musical Fidelity the reason.

The answer, according to the company is that: "Countless hours of listening tests have shown us that even the very best op-amps do not tend to be so neutral, natural, dynamic or vivid — all characteristics of the Musical Fidelity sound.

For that reason, we're rediscovering our passion for traditional, discrete designs."

## Equipment

The front panel of the M3x Vinyl phono stage pretty much gives away exactly what features it has inside, because they're all printed right there on the panel itself. You can see that the unit will accommodate both moving-magnet and moving-coil cartridge but, despite the provision of two push-buttons to select between them, there's only a single phono input on the rear. So you can connect either the one or the other, but not both simultaneously.

If you are using a moving-magnet cartridge, the six push-buttons just to the right of the two MM/MC selector buttons allow you to choose what load capacitance will be presented to your cartridge: 50pF, 100pF, 200pF, 300pF, 350pF or 400pF. Whichever of these load capacitance values you select, the value of the load impedance will remain fixed at 47kohms. The gain of the MM section is fixed at 40dB.

If you are using a moving-coil cartridge, then the six push-buttons at the far right of the front panel allow you to choose the load impedance that will be presented to your cartridge: 25 ohms, 80 ohms, 100 ohms, 400 ohms, 800 ohms or 1.2k ohms. The gain of the MC section is fixed at 60dB.

Between the MM and MC load-setting buttons are two other buttons, the left of which is labelled 'IEC' and the right '+6dB'. What the IEC button does is switch the M3x Vinyl's equalisation curve from being a standard RIAA curve to an IEC-RIAA curve. As for that '+6dB' switch, it activates an additional amplifier



stage that adds an extra 6dB of gain to increase the voltage at the M3x Vinyl's output terminals (unbalanced, using RCA connectors).

The 'Power' button is rather curious. It's not an On/Off switch, instead switching the M3x Vinyl between 'On' and 'Standby'. Musical Fidelity's literature claims the M3x Vinyl is fitted with "a new proprietary power supply solution that has zero standby power consumption. Absolutely zero! It is a super green product and we are sure there isn't any other product in existence with an ecological standby function like this." This is, of course, impossible and therefore not entirely true. The Musical Fidelity M3x Vinyl does draw power in standby, but not from the mains supply. It has a 3V CR2030 battery inside, which ensures that whatever cartridge type, load and gain settings you were using when you switched the M3x Vinyl off will be restored when you next switch it on.

The PCBs inside the M3xVinyl take up so little space that Musical Fidelity could, theoretically, have made the chassis smaller, but its size has allowed the designers to position all power supply components on a separate PCB as far away from the primary circuitry as possible. They've also used a totally shielded low-core saturation toroidal transformer to step down the 240V mains voltage to the amplifier's rail voltage. While Musical Fidelity hasn't used any op-amps in the signal path, the circuitry is not, as the company claims, "entirely discrete" because the PCBs do contain integrated circuits, including an ARM micro-controller.

Worthy of special mention round the back is the all-essential turntable ground post: a full-on brass screw fitting not unlike a speaker terminal, and much better than the plastic/arrow prong terminals often provided.

## Performance

First up for our listening was a brand-new LP of an intimately-familiar album — the 45rpm version of 'L.A. Woman' by The Doors, pressed by Analogue Productions. It's a part of a six-disc set cut by the legendary Doug Sax using the original analogue masters.

One outstanding musician on *Love Her Madly* is bass player Jerry Scheff, who once played for Elvis Presley. Listening via the Musical Fidelity M3x Vinyl we could appreciate even more how he manages to be totally inventive, with unusual bass lines that drive the song and create an underlying

**"Listen particularly to the way John Densmore's cymbals cut through the mix on *L.A. Woman*: you won't hear that using a lesser phono stage!"**

pulse, while all the time containing the song's break-neck tempo (one of Scheff's jobs was to make sure keys man Ray Manzarek didn't play too fast!). The M3x Vinyl revealed the tone of his bass better than we've ever heard, and also delivered the best stereo image we've heard from this track, given that it was recorded wide, with instruments played mostly left and right, rather than spread organically across the sound stage.

The spacey intro to *L.A. Woman* was served up beautifully by the M3x Vinyl, which made the bass and drums intro even more exciting, with the excitement increased even more by how well the M3x Vinyl handled the crisp drumming of John Densmore. Listen particularly to the way his cymbals cut through the mix on this track: you won't hear that using a lesser phono stage! Listen also to the repeated riff after the rhythm change at 3.02 and how the Musical Fidelity's channel balance is so exact that you can hear the almost imperceptible difference in arrival times from left and right speakers.

A real test for any phono cartridge — or any phono stage for that matter — is the magical soundscape presented by The Alan Parsons Project's album 'I Robot'. It was absolutely captivating the minute the stylus dropped into the title track. The vividness of the orchestral colouring on this track was reproduced blindingly well by the Musical Fidelity M3x Vinyl.

The Parsons link dictated that 'The Dark Side of the Moon' just had to be the next album on the audition list. Great sound has that ability to relax the soul, and the sound from the Musical Fidelity had us totally relaxed from the get-go. There's an amazing amount going on in *Speak to Me/Breathe*, while on the following track, *On the Run*, listen to the pan that starts at 1.36 and then the panoply of effects that follows, and hear

how the imaging ability of the M3x Vinyl throws everything into stark relief. Flipping the disc, *Money* similarly revealed the M3x Vinyl's amazing ability to separate the left and right channels while still maintaining a crisp stereo image.

During every album, we experimented with the RIAA curve setting, switching back and forth between each, and rather confoundingly found that we preferred the IEC-RIAA setting every time. It wasn't because it cut out rumble, because on all but one of the LPs we played there was no recorded rumble, and our system doesn't have any rumble to remove either. The IEC-RIAA just sounded better.

## Conclusion

If you use a high-quality phono cartridge, it is essential to also use a high-quality external phono stage if you're to extract the best performance from it. The Musical Fidelity M3x Vinyl phono stage is certainly a one-trick pony, in that it only does one thing and accommodates only one phono cartridge, but as Paul Simon says in his song of that name, "it turns that trick with pride". +

### SPECS

**Musical Fidelity M3x Vinyl** \$2499

**Input:** 1×RCA pair, grounding post

**Output:** 1×RCA (500mV nom 10V max)

**Dimensions:** 440 × 105 × 390mm

**Weight:** 6.6kg

#### MOVING MAGNET INPUT

**Frequency response:** RIAA or RIAA/IEC ±0.2dB

**Input sensitivity:** 5mV in for 500mV out (at 1kHz)

**Input impedance:** 47kΩ

**Input capacitance:** 50–400pF selectable

**Gain:** 40 or 46dB with +6dB function

**THD+N:** <0.028%

**Signal-to-noise ratio:** 95dB

**Crosstalk:** >100dB

#### MOVING COIL INPUT

**Frequency response:** RIAA or RIAA/IEC ±0.3dB

**Input sensitivity:** 500uV in for 500mV out (at 1kHz)

**Input impedance:** 25Ω–1.2kΩ selectable

**Gain:** 60 or 66dB with +6dB function

**THD+N:** <0.28%

**Signal-to-noise ratio:** 80dB

**Crosstalk:** > 90dB

**Contact:** Audio Marketing

**Web:** www.audiomarketing.com.au





hi-fi

streaming preamplifier



**Naim** Uniti Atom  
Headphone Edition  
streaming preamplifier

# Head first

EDITOR'S  
SOUND  
IMAGE  
CHOICE

**Naim's new Uniti player focuses on headphones first – but it's also a brilliant streaming preamplifier.**

UK-based Naim Audio became first renowned for its amplification, proving the importance of power quality from the early 1970s. Three decades later Naim was also quick to recognise the future of file-based and streaming music, and today enjoys great success with its Mu-so wireless speakers, while the Uniti range of all-in-one streaming systems deliver simple but definitely hi-fi just-add-speakers solutions.

In a way the three levels of Uniti player brought together everything Naim has learned — the wireless, multiroom and control elements of the Mu-sos, with the solid hi-fi amplification developed over decades, including more recent trickle-down tech from the developmental fillip of investment made in the company's no-holds-barred Statement amplifier project.

Now here comes the Uniti Atom HE, which takes the smallest of the existing Uniti all-in-ones and does something rather unexpected for Naim — it throws out the part on which the company built its reputation, the amplification.

## Equipment

Well, that's not entirely true. There are no amplifiers for loudspeakers, as provided on the other Uniti units (excepting only the Uniti Core, which adds networked hard-drive storage to the

range). But as the 'HE' of the new name suggests, it caters instead to headphones. On the front there are audio-detecting headphone jacks of full-size quarter-inch (6.5mm in new money) and 4.4mm Penteconn balanced connections, while round the back there's a second balanced connection on 4-pin XLR, less convenient but overridden by the front sockets, so you can leave an XLR headphone permanently attached. We're told that for this product Naim has used an all-new amp implementation designed especially so it delivers the best headphone amplifier experience, including a new transformer design to provide power tailored to the needs of the headphone amplification.

**Our new (but rarely presented) Editor's Choice award goes to those products which deliver special joy during their visit.**

## SUMMARY

### Naim Uniti Atom HE

Price: \$4299

- + Top-notch streaming
- + Fine headphone stage
- + Great as a preamp
- No HDMI ARC input



But this is not only a headphone amp. It's also a preamplifier, and Naim has optimised its preamplifier performance also, "including elements originally used in our flagship Statement Amplifier", it says.

As a preamplifier it offers one analogue input pair on RCA sockets (this is digitally sampled at 24-bit/48kHz) and then on the digital side two optical and one coaxial input, plus USB-A slots both front and rear. There's also Bluetooth available, which includes the aptX codec.

What doesn't it have? It loses from the original Atom the HDMI ARC connection which was handy to play audio from your TV, and there's still no USB-B connection to play direct from computer.

But its outputs are expanded, its variable preamplifier output available on both unbalanced RCA and balanced XLR outputs to feed your downstream amplification. This could play straight to power amps, since there is full volume control in the Atom HE — either from the remote, from its app, or from the heavenly Naim knob which sits on top, the only disadvantage of this positioning being that it is hidden when the unit goes on a good rack shelf, though its minimal height of 9cm means you should still be able to squeeze your hand in there for a knob spin when the urge presents itself.

And in addition to physical inputs, this Naim has all the streaming prowess of other Uniti members, and that's to say as complete a set of protocols as you'll find anywhere — so many, indeed, that when the range originally launched, it was significantly delayed by the paper trail for all the licensing involved.

So this includes being easily addressed from any Spotify app, free or paid, or using Apple's AirPlay 2 to stream the output of a Mac or any app on an iOS app, and Chromecast too, for point-to-point streaming from Android devices. Those with music libraries on a PC can use its UPnP 'server' function. It's also Roon Ready, and although the Roon-direct licensing was still going through when it arrived for review, it was nevertheless available in Roon additionally via its Chromecast and AirPlay abilities.

Then there are the services available within the Naim app itself. These include internet radio and podcasts, Tidal, and Qobuz (this last newly available to Australia). You may note these are services which offer higher-quality subscriptions; Naim emphasises this quality also in its internet radio app, with a section devoted to higher-rate streams than the often grungy desk-compressed pop stations. Tidal Connect is 'coming soon', though Naim's Stuart Brown told us via Zoom that they're

**"Wherever we accessed music, there was the Atom HE as a playback device waving at us, as if saying 'Play to me! Play to me!'"**

not yet convinced by its APK's file handling, so that Tidal within the Naim app is the more reliable implementation.

And one last batch of capabilities — the Atom HE is multiroom-capable with other Naim equipment including the Mu-so wireless speakers, so you can have music playing in unison (and Uniti) throughout your home. Chromecast and AirPlay 2 offer other paths to multiroom/device playback.

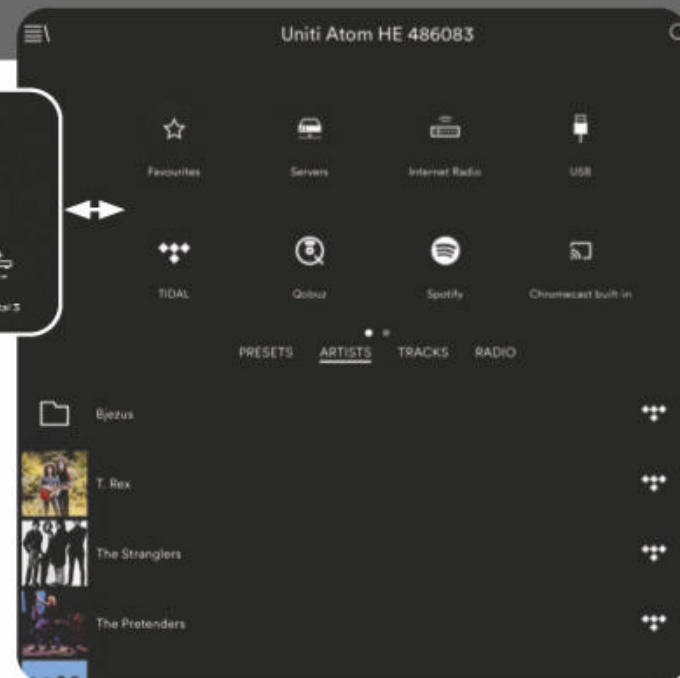
## Performance

Having previously reviewed the standard Uniti Atom, we found set-up here to be a breeze. You have to pair the remote control by holding it to the full-colour five-inch front-panel display while you push 'Home' for three seconds. Our Naim app, already installed on an iPad Pro, needed a reinstall before it saw the Atom HE on the network and delivered a update, losing contact until the update was complete.

Beyond that, we had absolutely zero operational issues, and indeed throughout our testing we were able to generate no criticisms at all, not a one, because Naim has honed its highly versatile and potentially complex operation to something near perfection. The Naim app presents all its streaming services on one screen, the inputs on a scrolling second screen; if that doesn't appeal you can use the settings to reorder the inputs to your preference, banishing unused ones to the second screen.

We had connected a Thorens turntable via a phono stage into the analogue input. We connected our computer to an optical input, using a DAC between them as a USB-to-SPDIF converter.

To kick off, we ran the Atom HE's unbalanced pre-outputs to our resident power amps. (For safety, once we had Roon connected, we specified a maximum level beyond which the volume slider couldn't go.)



We addressed it first from Tidal on the Naim app (see screenshots), then from the Tidal app itself, then from Roon. Indeed wherever we accessed music — on the music room computer, on our Chromebook, the iPhone, a tablet — there was the Naim Atom HE as a playback device waving at us as if saying 'Play to me! Play to me!' There are so many ways to play that surely any current preferred path to playback will fit right in.

We can fully believe Naim's claim that the preamp of the Atom HE is actually superior to those of the current Uniti range. Even in our initial set-up without the benefit of the balanced connections, all the cues from our favourite tunes poured from power amp and speaker references, dynami-





hi-fi  
streaming preamplifier

cally delivered, cleanly resolving the good and the bad. The effects on Alex the Astronaut’s main vocal for *Split the Sky* can sound curiously excessive on systems lacking resolution, degenerating into a mush. Here it could be discerned separately as part delay, part reverb. More to the point, the music and the emotion were entirely unchecked. The quite awful subject matter of her remarkable *I Like To Dance* is chilling; her Triple J cover of *Mr Blue Sky* — The Go-Betweens’ Lindy Morrison on drums — is sheer joy.

The Tidal stream through the Atom HE easily outperformed Spotify’s relatively softened sound. Naim’s Uniti platform does not support the MQA encoding which Tidal uses to ‘unfold’ its high-res Masters to their high definition — Naim could change this by firmware update, it has said, but is being led by demand. Whatever you might think of MQA, it may be that uncompressed FLAC high-res streaming as offered by Qobuz, Deezer and now Apple represents a purer future — after all, with today’s bandwidths defined by streaming 4K video, what need for data compression of high-res music any more?

So with Qobuz newly launched in Australia, we took the opportunity to connect our Roon to Qobuz, and our Roon to the Uniti. Roon’s excellent quality check pop-up box reminded us that Roon via Chromecast was dropping the high-res to 48kHz, so we switched to Qobuz direct inside the Naim app. And what a joy that was. Fleetwood Mac’s *Go Your Own Way* was almost alarmingly crisp; details on Toto’s *Africa* (the left-channel chuckle on the intro) astoundingly apparent, especially as our usual playback preference for this slice of soft rock is the vinyl 45. On Kate Bush’s *Running Up That Hill* the continuous rolling drums’n’bass were entirely segregated from the other parts, and the emotional lift of multitracked Kates as we reached the first ‘Come on baby, come on darlin’ was thrilling at an almost tactile level. We began regretting our agreement to return the Atom HE to distributor BusiSoft AV within an unusually brief two weeks; we were barely getting started and we were missing it already.

Also visiting from BusiSoft AV were the Final Audio D8000 Pro headphones (review next issue), a mere \$4999 with their silver-coated cables trailing away to the Atom HE’s full-size headphone jack like weighty twisted tinsel. The Naim had not the slightest trouble driving these esoteric 60-ohm planar magnetic headphones to their maximum ability, whether delivering a tight and punchy kick drum under the guitar and synthscape of The Triffids’ *Wide Open Road*, or highlighting the curiously lo-fi elements opening Gotye’s *Somebody That I Used To Know*. The Naim and Finals delivered a mind-meltingly zingy portrayal of The Go-Betweens’ *Streets of Your Town*, currently resurrected for advertising purposes by Ampol



**Inputs**  
The Atom HE has one analogue, two optical digital, one coaxial digital and two USB-A inputs, plus Bluetooth, and a whole lotta streaming.

**Outputs**  
There are three headphone outputs on the Atom HE, and also preamplifier outputs via a choice of balanced XLR or unbalanced RCA sockets.

but here crisply separated to the point where our attention was constantly darting around the soundstage to small sonic elements like the cunning combination of panned rhythm guitars, the tight block hits in the left, each element easily individually selectable by the mind’s ear, yet held together in a finely musical whole.

We also ran more affordable headphone references — open AKGs, closed Sennheisers — and there wasn’t a pair which didn’t display their full abilities or receive more than enough power on tap from the Atom HE — enough, indeed, to achieve quite worrying levels without any hint of congestion or distortion. The relevant figures are 1.5W per channel output into 16 ohms (from all headphone outputs), and output impedance of 4.7 ohms. The headphone amp remains in pure Class-A except for lower impedance headphones pushed to the extremes of volume, when a Class-AB circuit is “seamlessly” invoked.

If you like it loud (bearing in mind the dangers of so listening), the Atom HE will at least ensure you get your music with a minimum of damaging distortion.

After a head-pumping serve of Wolfmother’s *The Joker and the Thief* we wondered if we should take a rest, but Qobuz continued serving such delights that we didn’t, instead diverting to some high-res classical. This confirmed the dynamic reserve of the headphone output and a remarkable ability to stay tonally accurate across different impedance headphones. All this was from the standard unbalanced quarter-inch headphone socket; the balanced outputs could potentially lift the Atom HE’s game still higher.

Having an assortment of active stereo speakers in residence for our group test this issue, it occurred to us that the Atom HE’s

abilities as a preamp perfectly complemented just such devices. The ELAC Navis, for example, has balanced XLR inputs, to which we connected the Atom HE’s balanced outputs with wildly successful results — a brilliant pair of speakers provided with a perfectly-pitched preamp output backed by physical inputs, streams galore, an app, a physical remote control and Naim’s big knob. Adding good active speakers to the Atom HE makes for a compact yet versatile system, boosted by its particular powers to make your headphones sing when privacy is required.

**Conclusion**  
The Atom HE is an excellent addition to the Naim Uniti range — something genuinely different in offering a streaming preamplifier with a top-quality headphone amplifier. Use it alone with headphones, with power amps, or with active speakers, and you have a system just as versatile in its streaming abilities as the Mu-so, more versatile in its connections, and far higher in its hi-fi quality. And it comes with the best knob in hi-fi. It’s a big thumbs up from us. +

SPECS	
<b>Naim Uniti Atom HE</b>	\$4429
<b>Inputs:</b> 1 x analogue RCA, 2 x optical digital, 1 x coaxial digital, 2x USB-A	
<b>Streaming:</b> Apple AirPlay 2, Chromecast, UPnP, Spotify Connect, TIDAL, Qobuz, Roon Ready, Bluetooth, Internet radio	
<b>Headphone outputs:</b> 6.35mm, 4.4mm Pentaconn, 4 pin XLR	
<b>Audio outputs:</b> preamp unbalanced (RCA); preamp balanced (XLR)	
<b>Dimensions (hwd):</b> 95 x 245 x 265 mm	
<b>Weight:</b> 7kg	
<b>Contact:</b> BusiSoft AV	
<b>Website:</b> www.busisoft.com.au	



# Boya band

**B**oya is a new brand to us, owned by Shenzhen Jiayz Photo Industrial Ltd., and focused primarily on pro audio microphones and accessories, but also with a selection of headphones which includes three sets of true wireless buds, and this over-ear BY-HP2, described as a professional monitor headphone. There's no Bluetooth here, no noise-cancelling — these are straight-forward cabled headphones.

And there's nothing wrong with that. Time and again we review wireless headphones only to find that their best sound by far is delivered using ye olde cable connection. For all the proprietary Bluetooth codecs available, if you want top quality, cable is still invariably king.

Construction here is entirely black ABS high-density plastic, save for the ear-pads and headband padding which are what Boya describes as soft protein skin; they were certainly soft and comfy, and the headphones sat well enough on our largish head despite having no adjustment mechanism — this is a one-size-fits-all design.

There's just the cable to connect to both headshells, the non-locking miniplugs being usefully colour-coded to match with the L and R markings emblazoned on the fabric inside the earcups. No charging, no buttons to work out, no instructions even — it's all rather refreshing for a reviewer to enjoy such a plug-and-play product.

We began playback from a portable device, an iPhone aged enough to have a headphone socket, though aware that the headphones had a not-entirely portable-friendly impedance of 60 ohms. Indeed the enclosed information sheet and website noted that “*With a 300mW maximum input power, it better compatible with audio recording, post-production, or any other high-power devices, to reproduce you every detail of sound.*” This suggests, apparently without resort to the impressive powers of Google Translate these days, that Boya considers them less suitable for mobile use than plugged into a studio desk socket or dedicated hi-fi amp.

Certainly there was immediately apparent an over-egged bass component to the sound. Spoken male voices sounded unnaturally bloated and basslines were pushed far further forward in the mix than a natural presentation would deliver, significantly so in the region up to 200Hz before a recess in the lower mids. This had the curious effect of dividing Leonard Cohen's vocal on the ‘Live in London’ version of *Tower of Song* into two distinct components — the midrange drawl



**Boya BY-HP2**  
cabled headphones

## No BT, no NC, just good old-fashioned cables.

on top, and a booming bloaty bass component underneath. This bloom dominates the balance and prevents the lightness of touch further up the frequency scale from being enjoyed (they claim to be capable of delivering up to 40kHz, though no envelope is stated). Even female vocals, like Joni Mitchell on the latter version of *Both Sides Now*, had their treble nuances masked by muddiness beneath, and when the acoustic bass got its first pluck on that track, it flooded the whole soundfield, despite a perfectly pleasant midrange attempting to find some space.

Boya's description of the balance is presented thus: “*it has a high resolution, high performed midrange frequency, and high-fidelity output, which could well prevent distortion and offer a purely original sound*”. Original perhaps, but tiring to listen to at any decent level, though more suited to very quiet listening, where the bass is less intrusive and a more balanced presentation can be enjoyed. But who, apart from ear doctors, wants to listen quietly?

We listened to them using the little Matrix Audio element i streamer reviewed last issue, which can deliver all the input current the Boyas could possibly desire, and also from a Classé amp's headphone output, and, given the pro recommendation, from a Digidesign mixing desk. In doing so we discovered that clearly nobody in Shenzhen thought to

check whether the included quarter-inch headphone adaptor would fit onto the minijack plug — it didn't, so couldn't be used. Happily we had many spare adapters around which could replace it.

No matter what we used to drive them, or how long we left them to run them in, the bass-heavy balance was the same. Professional monitoring headphones should be entirely flat in response, to prevent making mixes which are biased inversely to the headphone characteristic. So these are not cans for mixing or monitoring, any more than for general listening. They are affordable, at \$229, but we could not offer a recommendation — unless you listen only very quietly. +

### SPECS

#### Boya BY-HP2

\$229

**Type:** Over-ear, closed, cabled

**Drivers:** 40mm

**Impedance:** 60 ohms

**Sensitivity:** 98dB

**Weight:** 224g

**Contact:** Maxxum Pty Ltd

**Web:** [www.maxxum.com.au/audio/boya](http://www.maxxum.com.au/audio/boya)





## Philip Swift, SPENDOR

Before he bought the company, Philip Swift had been a fan of Spendor speakers, right back to the company's very beginnings.

Interview by Jez Ford

► The original Spendor BC1s: "Relative to other popular loudspeakers of the day the BC1s were slim, compact and stand-mounted. I had to work a lot of hours to afford my first pair of BC1s!" says Philip Swift.

**SOUND+IMAGE:** *Spendor recently celebrated its 50th anniversary, and I gather you were aware of Spencer Hughes' speakers from near the beginning. Where did you first encounter them, and why did you warm to them?*

**PHILIP SWIFT:** Even as a child I was fascinated by sound and music. While at school I made various amplifiers from scratch and built several loudspeakers.

Then, when I was a student at Imperial College, I began working part-time at the original Audio T hi-fi shop in London's Oxford Street. We had amplifier test equipment there which was better than most manufacturers had, and we had a proper demonstration room with a custom-built high-quality remote-controlled comparator. We got involved in some quite complex installation projects and we offered home demonstrations and part exchanges — at the time most dealers simply sold sealed boxes with no demonstration and no technical support or after-sales service. We did things very differently and we got noticed — we caught the attention of the hi-fi press, several professional sound engineers, many equipment designers, and several like-minded dealers. They would regularly drop by for a chat and a listen, or to show us their new products and sometimes to see how they measured.

So that's where I met Spen [Spencer Hughes], before Spendor was even incorporated as a limited company in 1971. I remember also hearing a very early version of the Spendor BC1. It sounded amazing — so real, so clear, with a stable stereo image and, surprisingly at the time, articulate bass. It wasn't cheap: a pair of BC1s was about twice the price of KEF Concertos or B&W DM3s. Relative to these and other popular loudspeakers of the day the BC1s were slim, compact, and stand-mounted. I had to work a lot of hours to afford my first pair of BC1s! A few years later I had Spendor BC3s serial nos 1 and 2.

We sold many Spendor loudspeakers and I got to know Spen and his 'family' team well. I spent many hours talking and listening with Spen. He was happy to explain all the design and engineering that made Spendor loudspeakers so special.

So I guess I've always been a fan of not just Spendor loudspeakers but also the company and its elegant intelligent approach to engineering and manufacturing.

In my first year at university I also spent a summer working in the R&D department of Bang & Olufsen in Denmark, and I got to see how serious hi-fi manufacture was a complex and challenging business. So when I left university I knew there was only one thing I wanted to do. I spent a little

while longer working as a consultant and service engineer for Audio T, then I joined the guys who went on to establish Mission — they were distributing KLH loudspeakers at the time.

I'd met Derek Scotland [co-founder of Audiolab] at university, and we decided to design our own products which subsequently became Lentek products when we moved to Cambridge to join the company with me as MD and Derek as Technical Director. Our products — loudspeakers, the Entre moving coil cartridge, the Lentek head-amp and the Lentek Integrated amplifier — enjoyed good success, and we were also the first distributors outside of the US for Mobile Fidelity, Sheffield and Telarc. After we decided we were sure — and





► The Lentek Stereo Integrated amplifier of 1980, one of the first products created by Philip Swift with Derek Scotland before they founded Audiolab in 1983.

others were not so sure! — that our concept for a new range of affordable high-performance hi-fi electronics was viable, we decided to quit our day jobs to focus totally on developing the 8000A, 8000C and 8000P. That was done in a bedroom in my house. The original 8000A (over 13 years there were seven production versions, each one better than the last, but we called them all 8000A) was launched in October 1983 and I guess we never looked back.

**S+I:** In 1998, Udo Zucker took over Audiolab to create TAG McLaren Audio. Was there an interim before you took on Spondor?

**PS:** I remember well — it was one year and one week, three months of that on gardening leave. Zucker didn't want any input from me and made it blatantly obvious he wouldn't be keeping me on. I wish I could have left sooner!

Then in 1999 I was on the phone to an industry friend in Taiwan. He mentioned that Spondor was for sale, was I interested? My initial reaction was that I wasn't thinking of getting involved in the loudspeaker business. I was well advanced with developing my own home automation — including high-end audio — business and had got involved in some exciting design/marketing/research projects with others. Then I thought — this is a unique never-to-be-repeated opportunity to acquire one of the world's most highly respected UK loudspeaker brands: I have to do it. Spondor was owned by UK company Soundtracs plc [a professional audio mixing console manufacturer] who had acquired the business around 1993 when Dorothy Hughes [MD and wife of the late Spencer Hughes] decided it was time to retire and Derek Hughes [Spondor chief engineer, son of Spencer and Dorothy] who enjoyed his engineering role, didn't feel he wanted to take on the responsibility



of running a business day to day. Spondor was doing steady business, but sales were not growing. The brand had lost some of its visibility, but Spondor's fine international reputation was solidly intact. I knew if I didn't buy Spondor it would be sold to a Chinese company who were keen to acquire the brand and business and re-locate it to China. A few minutes later Todd Wells [MD of Soundtracs] was on the phone to me! I acquired the business at the beginning of January 2000.

I saw there was great potential to transform Spondor into a progressive modern business and put the name firmly back on the international map. I realised that this would require new thinking, major changes and some time. Since I acquired the business I think we've transformed, streamlined and thoroughly modernised almost everything. Alongside our all-new product lines [the **A-Line and D-Line**, see overleaf] we've carefully and sensitively — and successfully — introduced the most significant ever advances to the Spondor Classic Line without losing any of the heart and soul of the 70s' originals. Today our turnover is about 10 times what it was back in 2000... so we must be doing something right.

**S+I:** Can you untangle the timeline of who was designing Spondor speakers when?

**PS:** Initially Spondor loudspeakers were designed and engineered by Spencer Hughes. After Spencer passed away in 1983 Derek Hughes took over. When I acquired Spondor in 2000 Derek continued as consulting engineer until 2003 when he decided to semi-retire so he could pursue other projects. Graham Landick (ex B&W and TAG McLaren Audio) joined as Head of Loudspeaker Design and Engineering — that was when we started to introduce the major changes and innovations which were realised in our multi-award-winning S-Series loudspeakers. Terry Miles, who had over 30 years of experience working for Spondor as chief technician became Technical Design Manager in 2007.

In 2010 we moved to our own brand-new custom fitted premises in Hailsham (East Sussex UK) and we now have our own specialist cabinet manufacturing facility (Timberworx) alongside our new Spondor R&D facility at the Advanced Manufacturing Park in Sheffield, where I am now heading up our new team which will include a number of fresh graduate engineers with the vision and skills to implement the most modern measuring techniques and simulation software. I believe this is the only way forward because it opens exciting possibilities for significant sound quality advances. Already we've come up with some exciting new ideas for future products, but they will take time to develop and prove.

Our new design team has some of the sharpest ears I've ever encountered, and everyone has a real passion for music and sound. While engineering provides the tools we need to realise our ideas, our ears will continue to guide our decisions on what sounds right.

◀ The Audiolab 8000A amplifier, a classic design which was part of the initial Audiolab range — developed, says Philip, in a bedroom of his house.





**S+I:** *You are still firmly based in the UK, where your drivers and cabinets are made, and the speakers assembled. Have you ever considered moving production to Asia, as have so many others?*

**PS:** We design and manufacture all Spondor drivers and cabinets in-house in the UK. This gives us complete control over the quality of our products and manufacturing processes. It also means we can experiment with new ideas and realise/test them quickly in-house. Our cabinet manufacturing facility Timberworx is set-up specifically to make quality hi-fi loudspeaker cabinets and some turntable parts and plinths — we don't make kitchens or furniture. We make cabinets for Spondor and also for several other internationally respected specialist hi-fi manufacturers.

We have considered sourcing cabinets or even finished loudspeakers in Asia, but unless you are quite a large (by volume) manufacturer then the numbers, minimum orders, lead times, logistics, transportation transit times of manufacturing in Asia don't stack up for Spondor or for our cabinet customers. And interestingly we were recently approached by a well-established Chinese hi-fi manufacturer investigating the possibility of setting up some manufacturing in the UK!

It would be difficult to continue using some of the special — some proprietary — materials and techniques, hand finishing methods and special calibration and testing we have developed for our drivers, cabinets, crossovers, cabinets and complete loudspeakers if they were made in Asia or outside the UK. We also prefer to contribute to the UK economy as a value-adding manufacturer rather than to be an importer of outsourced products. But I will admit we all drive imported German cars...

Our end-customers, dealers and distributors in Asia have always liked that our products are totally made in the UK. We wouldn't want to lose that advantage — it's an inherent element of the personality and individuality of our company.

**S+I:** *Is there anything exciting in the pipeline you can share?*

**PS:** I can reveal that later this year, when hopefully some sort of new normality resumes in the world, we will be launching BASE. BASE is a new division of Spondor specialising in Vibration Control Technology. Our first products have been three years in development, and they incorporate unique, elegant, and highly effective patented technology. They offer a solution which eliminates the all-pervading vibration which adversely affects the sound of all hi-fi and audio components — from streamers, to amps, turntables, power supplies, whether digital, analogue or tube, and regardless of cost. The effect of adding a BASE platform is instant dramatic and clearly audible... we'll update you when we are ready to launch. +



▲▼ Examples from Spondor's three ranges today. ABOVE LEFT Spondor A7 (\$6875) from the A-Line; ABOVE RIGHT: the D7.2 (\$9499) from the D-Line; BELOW Spondor's Classic 200Ti, the titanium-baffled version of the company's flagship Classic 200 (\$38,999). Spondor is distributed in Australia by Indi Imports: [indimports.com](http://indimports.com)







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## NSW

### ABSOLUTE HI-FI

Liverpool NSW  
[absolutehifi.com.au](http://absolutehifi.com.au)

### ADDICTED TO AUDIO

Newtown NSW  
[addictedtoaudio.com.au](http://addictedtoaudio.com.au)

### AUDIO JUNCTION

Hamilton NSW  
[audiojunction.com.au](http://audiojunction.com.au)

### AUDIO SOLUTIONS

Mascot NSW  
[audiosolutions.net.au](http://audiosolutions.net.au)

### EASTWOOD HI-FI

Dural NSW  
[eastwoodhifi.com.au](http://eastwoodhifi.com.au)

### INSTYLE

Dural NSW  
[instylehifi.com.au](http://instylehifi.com.au)

### LEN WALLIS AUDIO

Lane Cove NSW  
[lenwallisaudio.com](http://lenwallisaudio.com)

### LIFE STYLE STORE

North Parramatta NSW  
[lifestylestore.com.au](http://lifestylestore.com.au)

### SINGLETON HI-FI

Singleton NSW  
[singletonhifi.com.au](http://singletonhifi.com.au)

### STURMANS

West Wollongong NSW  
[sturmans.com.au](http://sturmans.com.au)

### SYDNEY HI-FI CASTLE HILL

Castle Hill NSW  
[sydneyhificastlehill.com.au](http://sydneyhificastlehill.com.au)

### SYDNEY HI-FI MONAVALLE

Monavale NSW  
[sydneyhifimonavale.com.au](http://sydneyhifimonavale.com.au)

## VIC

### ADDICTED TO AUDIO

Kew East VIC  
[addictedtoaudio.com.au](http://addictedtoaudio.com.au)

### AUDIO TRENDS

Ringwood VIC  
[audiotrends.com.au](http://audiotrends.com.au)

### CARLTON AUDIO VISUAL

Carlton VIC  
[carltonaudiovisual.com.au](http://carltonaudiovisual.com.au)

### CLEF HI-FI

South Melbourne VIC  
[clefhifi.com.au](http://clefhifi.com.au)

### ADDICTED TO AUDIO

Leederville WA  
[addictedtoaudio.com.au](http://addictedtoaudio.com.au)

### MELBOURNE HI-FI

Hawthorn VIC  
[melbournehifi.com.au](http://melbournehifi.com.au)

### RADIO PARTS

West Melbourne VIC  
[radioparts.com.au](http://radioparts.com.au)

### SOUNDAIR HI-FI

Caulfield VIC  
[soundair.com.au](http://soundair.com.au)

### VINYL REVIVAL

Fitzroy VIC  
[vinylrevival.com.au](http://vinylrevival.com.au)

### WEST COAST HI-FI

Osborne Park WA  
[westcoasthifi.com.au](http://westcoasthifi.com.au)

### WEST COAST HI-FI

O'Connor WA  
[westcoasthifi.com.au](http://westcoasthifi.com.au)

### WEST COAST HI-FI

Rockingham WA  
[westcoasthifi.com.au](http://westcoasthifi.com.au)

## QLD

### AIR SOUND & VISION

Bungalow QLD  
[airsoundvision.com.au](http://airsoundvision.com.au)

### LIVING SOUND

Fortitude Valley QLD  
[livingsound.com.au](http://livingsound.com.au)

### TODDS HI-FI

Tingalpa QLD  
[todds.com.au](http://todds.com.au)

## SA

### ADDICTED TO AUDIO

Hilton SA  
[addictedtoaudio.com.au](http://addictedtoaudio.com.au)

## ACT

### INTEGREAT ELECTRONICS

Fyshwick ACT  
[integreat-electronics.myshopify.com](http://integreat-electronics.myshopify.com)







①

## LEGEND: Jean-Luc Godard

Has any director ever owned a decade quite like Godard did the 1960s?

**T**he very definition of a Parisian intellectual, the 20-something Godard became a critic for film mag *Cahiers du Cinéma* in the 1950s, alongside fellow future directors Éric Rohmer, Claude Chabrol and François Truffaut. Rubbishing the era's French cinema, Godard's prose revered Hollywood and popularised the idea of auteur directors. When Truffaut turned filmmaker with *The 400 Blows* (1959), it was only a matter of time before Godard followed.

Godard's 1960 debut, *Breathless* (*À Bout De Souffle*) ①, showed he could walk the walk. It was nothing less than his sharp criticism in film form, shot with insolent cool and intent on redefining cinema with its attention-grabbing use of the jump cut. Later films would be awash with captions, slogans, colour filters and sudden bursts of silence or music: anything that interrupted the usual way of doing things.

He released 19 features (and several shorts) during the 1960s, many of them classics. The varied run takes in movie-biz satire (*Contempt* ②), lovers-on-the-run romance (*Pierrot Le Fou*) and even sci-fi (*Alphaville*), all subverted and augmented with Godard's nonstop invention.

After 1967's *Week-end* ③, Godard fled from mainstream cinema to make increasingly oblique essay films, full of Marxist rhetoric and formal experimentation. Since the 1980s he's toned down the political extremes without compromising on making challenging material. This reputation for difficulty has made Godard a figure of worship in academic circles but has arguably made him less beloved to movie geeks than Bergman or Fellini.

Now 90, Godard is the last man standing of Europe's post-war arthouse boom. He's never stopped working; 2014's *Goodbye To Language* ④ pushed the boundaries of 3D, while his most recent (2018's *The Image Book*) earned Godard a Special Palme d'Or at Cannes. This year, during the Covid-enforced lockdown, Godard reaffirmed his mystique by holding court on his life and art during an extended Instagram Live lecture.

Simon Kinnear

### FOUR MUST-SEE JEAN-LUC GODARD MOVIES

#### ① *Breathless* (*À Bout De Souffle*): 1960

Probably the single most influential film of its era, Godard's audacious debut still entrances with its Gallic glamour and freewheeling energy.



#### ② *Contempt* (*Le Mépris*): 1963

Peak Godard, equal parts tragedy and comedy, as Michel Piccoli and Brigitte Bardot's marriage dramatically unravels during a film shoot.

#### ③ *Week-end* 1967

With a typically bold title card Godard declared his surreal, iconoclastic road trip – all crashed cars and cannibals – to be the “end of cinema”. It turned out to be his final ‘mainstream’ film.

#### ④ *Goodbye To Language*: 2014

Still a pioneer well into his 80s, Godard scrambled audience's brains by splitting the 3D image into two.



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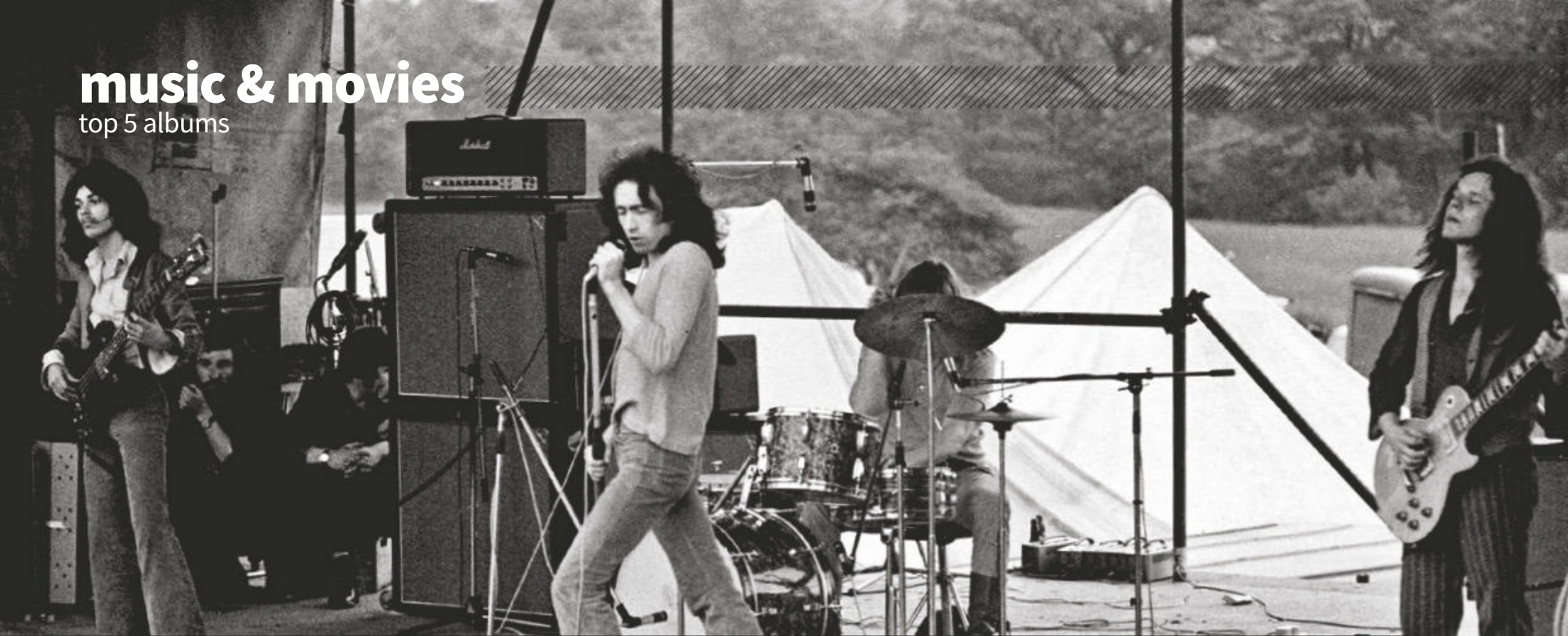
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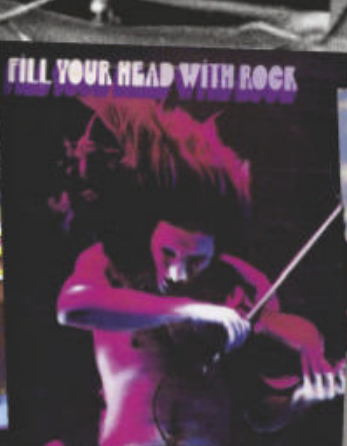
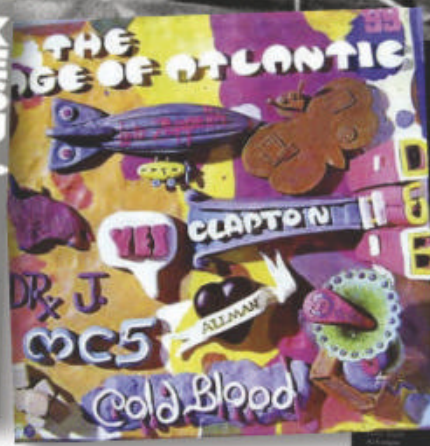




# Samplers

They were cheap, often weird, but in the 1960s and early 70s record company samplers were a lifeline to new music, and for bands, sometimes the launchpad to success.

## top 5 compilations



It's all around you, as much as you desire — on the radio, TV, countless digital platforms and other means of delivery. It goes with you on your phone, iPod, laptop and tablet. You're bombarded with it in shops, pubs, bars, restaurants, cafés and on call-hold. These days music is everywhere, whether you want to hear it or not, to the point where it can be hard to get away from it.

But it wasn't always like that. Until the UK got Radio 1 in 1967, and Australia got Double Jay on AM in 1975 along with the expansion of FM broadcasts, if you wanted to discover new music, often even the popular stuff, you had to make an effort, tuning in on time to the few music programmes that offered a precious lifeline to music that was new and exciting.

If your taste was a little more eclectic and went beyond what was likely to figure in the Hit Parade (now known as the charts), then you had to pool knowledge. Friends would gather together at someone's house to listen intently to each other's latest album purchase. You'd spend hours flicking through sleeves in your local record shop, looking for some indication that the music inside might be worth hearing, and then ask if you could listen to it in one of the shop's listening booths. Or if you got

to know the person who worked on the record counter you could spend a few Saturday-afternoon hours there listening to your requests before the manager came along and told them to play something "a bit nicer".

When 'samplers' — record labels' budget-priced 'try-before-you-buy' compilations of tracks from a range of artists on their label — came along at the end of the 1960s, to music fans thirsty for something new they were affordable treasure troves. Samplers were many people's introduction to what became their favourite artists. In many cases they were also a significant factor in some of those artists going on to become established stars. Some of the artists were already stars, and tracks from them might be included so that punters weren't shooting in complete darkness. Often the track-listings varied wildly in musical style, but that was part of the point: to deliver a wide range of new music in the hope that an artist flicked your switch and you went on to buy more by them. Of course it's impossible to say how much they helped careers. But it's also possible that without samplers some artists who went on to have long, hugely successful careers might not have got further than that difficult second album.

### ① YOU CAN ALL JOIN IN Island Records 1969

More than just a showcase for some of the newer/ lesser-known signings (alongside a couple of established artists) to Island Records, that label's first sampler showed just how good samplers could be, and would carry some weight as a 'regular' compilation album. With highlights including Free's *I'm A Mover*, Jethro Tull's *A Song For Jeffrey*, Fairport Convention's exquisite *Meet On The Ledge* and Art's *What's That Sound* (a renamed cover of Buffalo Springfield's *For What It's Worth*), this early sampler thankfully set a high-bar for those that followed, and it's arguable that few, if any, really bettered it.

### ② THE ROCK MACHINE TURNS YOU ON CBS Records 1968

The one that started the sampler ball rolling, did what the title says; this album was the first step to many people being turned on to previously-unknown mostly American artists by great tracks such as Spirit's *Fresh Garbage*, Blood, Sweat & Tears' brassy *My Days Are Numbered*, Moby Grape's up-tempo shuffle *Can't Be So Bad* and Taj Mahal's laid-back



slide-driven *Statesboro Blues*. Those four alone are worth the price of admission. Familiar names such as Bob Dylan, The Byrds, The Zombies and Simon And Garfunkel provided a safe haven for those unsure about exploring unfamiliar territory.

### ③ THE AGE OF ATLANTIC: *Atlantic Records 1970*

The bigger the label, the bigger the artists and the more diverse the roster to choose from. In the 60s/70s, Atlantic was one of the biggest, and were able to have Led Zeppelin (*Whole Lotta Love*, *Communication Breakdown*), Delaney & Bonnie's Clapton-enhanced hit *Comin' Home*, MC5 thumper *Tonight* and Yes (*Survival*) among the carrots dangled to entice record buyers to hear then lesser-known, artists. Among these, Iron Butterfly, Dr John, the Allman Brothers Band (the excellent *Black Hearted Woman*), and Vanilla Fudge all offer something worthwhile.

### ④ FILL YOUR HEAD WITH ROCK: *CBS Records 1970*

Given CBS's roster, it's no wonder that two years on from 'The Rock Machine...' they were able to muster a star-spangled double sampler with enough top-drawer class — Santana (*Savour*), Chicago (*Listen*), The Byrds (*Gunga Din*), Johnny Winter (*I Love Everybody*), Leonard Cohen (*You Know Who I Am*), Argent (*Dance In The Smoke*), Taj Mahal (*Six Days On The Road*) — that the supporting cast almost doesn't matter. But it does, and the likes of Black Widow (*Come To The Sabbath*), Skin Alley (*Living In Sin*), Steamhammer (*Passing Through*) are evidence that making it big depended on so much more than just making great music.

### ⑤ THE VERTIGO ANNUAL: *Vertigo Records 1970*

One of lesser-known and more out-and-out rock samplers of the period, this mostly British collection is notable for the strength of the tracks by some of its lesser-known artists. Best of that bunch are the gloriously fuzzed-Hammond-driven *Introduction* by lost-in-action proggers Gracious, Cressida's excellent waltz-away *To Play Your Little Game* and especially Affinity's brilliant *Three Sisters*. The big names here include Black Sabbath (*Behind The Wall Of Sleep*), Uriah Heep (*Gypsy*), Manfred Mann Chapter Three (*One Way Glass*) and Rod Stewart (*Handbags And Gladrag*s), but by no means do they steal the show.

### JUST FOR PROGGERS...

#### PICNIC (A BREATH OF FRESH AIR): *Harvest 1970*

The progressive-inclined imprint of British major-player major label EMI, Harvest was at the time home to home-grown artists including Pink Floyd, Roy Harper, Deep Purple, Barclay James Harvest and R&B bruisers The Pretty Things. All those make their mark on this 2-LP set with less obvious tracks (e.g. Floyd with *Embryo*, Purple with *Into The Fire*), but they're given a run for their money by top tunes from comparatively in-the-shadows artists here like Kevin Ayers (*Eleanor's Cake Which Ate Her*), the Battered Ornaments (*Twisted Track*) and Quatermass (*Black Sheep Of The Family*).



#### CHARISMA FESTIVAL 1976

Another one for prog-leaning fans with a broad musical taste, this has a 'family'-feel track listing that includes Genesis and offspring Peter Gabriel and Steve Hackett, and second cousin Brand X, Van Der Graaf Generator and their breadwinner Peter Hammill, Hawkwind, The Nice, Patrick Moraz and Lindisfarne among the better-known names. That broad musical taste will be helpful for tracks by Rare Bird, Clifford T Ward, String Driven Thing and Paul Ryan. A double album with two tracks apiece from most of the artists, but for some of them the song selection could have been a bit better...



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## ALICE COOPER *Detroit Stories*

Coop revisits his birth city and forges a late-life classic.

**S**pearheaded by *I'm Eighteen*, Alice Cooper's 'Love It To Death' in 1971 laid glowering templates for hard rock, glam and punk, shot with cinematic thrills, TV-eye narratives and tough Detroit attitude.

Although coming of age in Phoenix before Alice Cooper manifested in LA, the man himself is from the Motor City, its outcast grit in his DNA. After LA proved too laid-back, the emergence of the MC5 and Stooges called Alice back to his self-described "birthplace of angry hard rock". With Alice transformed into rock's spider-eyed baddie and his band drilled into shape by young producer Bob Ezrin, 'Love It To Death' ignited the huge success consolidated by *Killer* and *School's Out*.

After his subsequent decades of turmoil and triumph, Alice returned to Detroit in 2019, celebrating balls-out Motor City rock with Ezrin, MC5 guitarist Wayne Kramer, Detroit Wheels drummer Johnny 'Bee' Badanjek, bassist Paul Randolph and others on the 'Breadcrumbs' EP, on which originals like *Detroit City 2020* were joined by badass garage covers of Bob Seger's *East Side Story* and MC5's *Sister Anne*.

The EP has now been expanded with the same core squad into Alice's 21st solo album. '*Detroit Stories*' is his most concise bolt of precision-tooled heavy rock in 50 years, enhanced by Ezrin's robust production and Alice on lethal form, vocally and lyric-wise.

Instantly stunning from the opening salvo of Lou Reed's *Rock 'n' Roll*, Mitch Ryder's strutting 1971 version its blueprint, and *Go Man Go* piledriving at getaway-car velocity (opening line: 'I just got outta jail, stole me a hubcap, I'm a moron'), the street-wise anthems continue with *Hail Mary*'s feral Chuck Berry chug, self-explanatory *Shut Up And Rock* and Motor City roll-call *Detroit City 2021*. Cooper's lyrical flair hot-wires the monolithic *Social Debris* into a glorious anthem of urban collapse. Bitingly-relevant wry Detroit nihilism rakes *Independence Dave*, *I Hate You* and *Wonderful World*'s grainy basement chug. *Drunk And In Love* humps Stooges-style gutter blues. *Our Love Will Change The World* oddly evokes jaunty sunshine pop. *\$1000 High Heel Shoes* honours Detroit's soul pedigree with backing chorale and Motor City horns garnishing its strutting funky groove. *Hanging On By A Thread (Don't Give Up)* becomes Alice's semi-spoken survival ballad. The 'Breadcrumbs' covers provide worthy touchstones.

At 73, Alice has come home to give his home city a new classic to add to its illustrious hard rock legacy.

Kris Needs



## OSIBISA

### New Dawn

Afro-rockers still with us after 50 years.

**O**sibisa are a reminder of the length and endurance of the Black British musical inheritance. Ghanian in origin, they formed in 1969 and have worked on and off as a fluid collective ever since, with keyboard player Robert Bailey now the only original member.

But constant rejuvenation of their line-up has enabled Osibisa to remain fluid and eclectic. 'New Dawn' merges a range of styles, from the gruff 70s boogie of *Adjuawa Aye (Go With The Flow)* to the contemporary R&B juicy fruit of *Dark Matter*, featuring R&B vocalist Faye Jones. In between they alight on highlife, Afrobeat, reggae and muscular funk in a casual yet meticulously practised manner that is never less than pleasurable, infectious and colourised.

David Stubbs

## JOHNNY THUNDERS

### Live In Osaka '91 & Detroit '80

Schizophrenic package of two JT shows.

**C**oncurrent to touring with The Oddballs, Thunders would bolster his coffers with low-key stripped-down shows that showcased acoustic material from across his career (the Dolls' *Lonely Planet Boy*) and unlikely covers (Jagger and Richards's *As Tears Go By*) alongside newer, less familiar songs. He'd unveiled his last compositions in the late 80s: songs so irredeemably sentimental (*Society Makes Me Sad*, *Disappointed In You*) that record company cheque books remained firmly closed — until his death in 1991.

This double vinyl set's first disc captures one such show, recorded in Japan just 15 days prior to Thunders' demise, with The Oddballs' Jamie Heath on sax and Stevie Klasson on guitar. But these chump-change gigs never found Thunders at his best, and it's not the greatest epitaph in and of itself. That's where disc two comes in.

Here is Thunders in familiar mode: with Heartbreakers sparring partner Walter Lure at his side, over-cranked guitar set to 'stun'. It's Detroit, it's 1980 and he's still at the top of his game. Familiar to fans as the Thunderstorm In Detroit bootleg and featuring an all-guns-blazing assault on *So Alone*, it's a performance that captures the Johnny Thunders of legend. Remember him this way. **Ian Fortnam**







## THE MARS VOLTA

### La Realidad De Los Sueños

A completist's dream of long-lost recordings.

When Omar Rodriguez-Lopéz and Cedric Bixler-Zavala diverged from the much-loved post-hardcore band At The Drive-In, they went on a two-man mission to out-prog the proggiest proggers in progland with The Mars Volta, an outfit designed to give life to their unique inner visions through often baffling tricks of the guitar and stretched-to-the-limit human voice. It's not for nothing that this box's title translates as 'the reality of dreams'.

Starting with debut EP 'Tremulant' and all six of their albums, this weighty 18-LP box set has been remastered specifically for vinyl, is limited to 5000 copies and is not available on any other format. It also includes a photo-book and a badge — for the love of God don't forget about the badge! But the main reason for its existence is 'Landscape Tantrums', the borderline-mythical unfinished original recordings of the songs that would become 'De-Loused In The Comatorium' after producer Rick Rubin got his hands on them.

It's no disappointment. While Rodriguez-Lopéz's flawless musical dexterity landed fully formed, impenetrable and entirely unpredictable, the rawness draws a bridge between their punk past and ever-more progressive future, the intense groove of *Drunkship Of Lanterns* contrasted highly against Bixler-Zavala's sometimes animalistic shriek. Recorded during a period of heavy drug use, it makes for an almost

uncomfortable experience as we're dragged into the bleak concept at the heart of it all: the view from inside the main character's coma, an overdose of morphine and rat poison.

Rodriguez-Lopéz has said: "As a work of art in its own right, this set also needs to be seen as the end of a story." But it's better to see it as an excuse to go back to the very start, and relive the unfolding wizardry that followed at dizzying speed over the rest of the albums here. What reveals itself is music as science, science as emotion, emotion as inspiration, put together by crazed geniuses with virtuoso skills. 'Lost' songs *A Plague Upon Your Hissing Children* and *Eunuch Provocateur* are respectively a spittle-flecked freak-out and a glorious explosion of guitar wonk, adding the final pieces to one of the most complex, often frustrating but ultimately rewarding puzzles in modern progressive rock.

Emma Johnston



## JETHRO TULL 'A'

Tull original lovingly expanded to three CDs and three DVDs.

By the time of 1980's 'A', Jethro Tull's remarkable run of globe-straddling success had peaked. It was their first album not to make the US Top 20 since their 1968 debut, and in a Britain dazzled by Tubeway Army and The Pretenders, Tull were suddenly the oldest of hats.

'A' wasn't even supposed to be a Jethro Tull album. Instead Ian Anderson brought in keyboards/electronic violin virtuoso Eddie Jobson (Curved Air, Roxy Music, Frank Zappa), Jobson's pal Mark Craney, formerly Tommy Bolin's drummer, and Tull's Martin Barre and Dave Pegg for a solo album. To Anderson's lasting regret, his label Chrysalis insisted it being credited to the mothership.

This whopping box features five extra tracks plus a 1980 Los Angeles show remixed by Steven Wilson which features a heroic assault on *Heavy Horses* and *Songs From The Wood* at its most spring-heeled. Wilson has also remixed a second version of the album to sonically-enhanced effect, and there's the endearingly daft, David Mallet-directed, part live, part concept video 'Slipstream', on which Anderson takes his Aqualung character for another spin around the block.

Four decades on, Anderson's attempts to drag Tull into the 1980s seem quaint, but Jobson's keyboards wash makes it unique in the catalogue. As a result, this bridge between idiosyncratic Tull and more conventionally rocking Tull divides opinion like no other album, but the years have been kind. Other than the wholly out of context instrumental *The Pine Marten's Jig*, 'A' swapped bucolic rusticity harkening to a sepia-tinted past for contemporary issues, such as that year's Iranian Embassy Siege on *Crossfire*, accidental nuclear war on *Fylingdale Flyer*, and less accidental nuclear war on *Protect & Survive*. To top it all, they toured wearing white jump suits.

For such a blatant attempt to embrace the zeitgeist, it stands up rather well. But it's not without faults. *Working John*, *Working Joe* is a sneery take on the lower orders, and *Uniform's* line "strange foreign chaps in white bed sheets" is, shall we say, of its time. Elsewhere, though, *Black Sunday* is Anderson in unusually sensitive mood, while *And Further Along* shows he could do thoughtful end-of-the-world laments too.

Ultimately, 'A' isn't one of the great Jethro Tull albums, but it's more than the runt of the litter. These six discs show why.

John Aizlewood





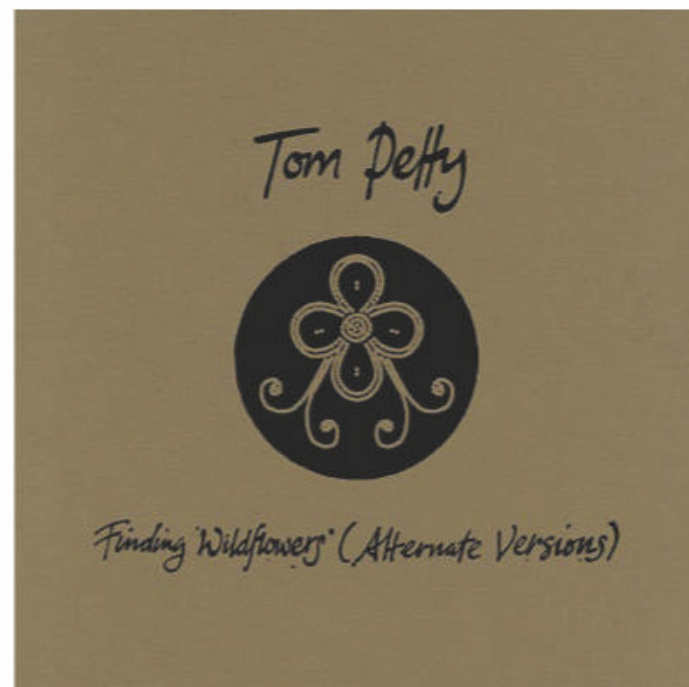
## JOHN LENNON/PLASTIC ONO BAND *Ultimate Collection*

Who'd have thought Lennon's confessional could get *more* exposed?

From the ominous church knell heralding the lyrical bereavement therapy of *Mother* to the crushed lullaby to no one *My Mummy's Dead*, John Lennon/Plastic Ono Band (1970) — undoubtedly his most raw and revealing solo album, arguably his best — was always a harrowing, uncompromising listen. Still processing The Beatles' split, and psychologically taken apart but not yet reconstructed by primal therapy, John Lennon delivered a sonic exorcism, tackling his childhood abandonment by both parents, a lifetime of grief and confusion, and the torments of Beatlehood in a 40-minute collision of corroded blues desperation (*Well Well Well*, *I Found Out*), blank cynicism (*Working Class Hero*), scarred soul (*Isolation*, *Mother*, *God*) and serene existential crises (*Look At Me*).

Band members — Ringo included — would claim that Lennon was in an unstable state during recording, laughing one second, scream-crying the next. It's this behind-the-scenes gristle that fans will be scouring this monster six-CD/two-Blu-ray dissection for. But far from being a car crash with sleeve-notes, the conventional box-set extras — each replaying the album from a different angle, with *Give Peace A Chance*, *Cold Turkey* and Ziggy blueprint *Instant Karma!* tacked on — instead display a mercurial talent deconstructing his art to break brave new ground. The demo disc hints at the acid-psych classic that early takes of *Mother* and *Love* might have spawned, while *Well Well Well* and *Cold Turkey* resemble grainy recordings of a 1930s Mississippi bluesman mid-meltdown. *God* begins life as a brilliantly throwaway 50s Americana strumble, a piano-led *Isolation* sounds like a dry run for *Imagine*, and *Give Peace A Chance* is a babbling cod-country mess in which Lennon claims everybody's talking about constipation, which they definitely weren't.

From this rootsy ore, through numerous unpolished studio mixes and out-takes, Lennon crafts an influentially savage record caged within bristling and beatific melodic frameworks. *Remember* grows from a subdued shudder into a compulsive, locomotive beast. *Cold Turkey* becomes starker, tenser and proto-punkier, shaken at every step by Lennon's climactic primal howls. *Hold On* loses its organic sheen to become an oceanic self-hug. *Love* gains its tear-jerking piano refrains, and *Give Peace A Chance* loses its less stirring chants ('wake up at the back there!') and a merciful amount of Yoko. *Mark Beaumont*



## TOM PETTY

**Finding Wildflowers (Alternate Versions)**  
A fragrant bouquet of strayed versions.

When a nine-disc version of Tom Petty's 1994 album 'Wildflowers' was released last year, a daunting level of fan loyalty was required. For the more fair-weather and conventionally curious Petty follower, this detachment (from that set) of the 16 alternative takes and longer jams makes solid sense, offering insight into his process without demanding that you pass an exam on every home recording. An album that he always wanted to be longer (the label disagreed) is, almost 30 years on from its inception, being allowed to stretch its legs at its own pace.

With Rick Rubin producing, and most of the Heartbreakers playing despite it being a solo record, it's clear that Petty wanted to glide away from Jeff Lynne's ornate tropes and keep things lean and reflective.

While 'Wildflowers' was still rock music, it was softer, folkier, with a hint of 'After The Goldrush'-era Neil Young. The versions here lean into that sensitivity: *You Saw Me Comin'* lopes like a hungry tiger yet carries a sense of yearning, of romanticism; *It's Good To Be The King* matches wit and fluidity; and *Honey Bee* is as streamlined as it is sassy. Here is an artist maturing and mellowing, yet still blossoming.

**Chris Roberts**

## JIM CAPALDI

**Short Cut Draw Blood**  
Traffic man's 1975 solo record on digital.

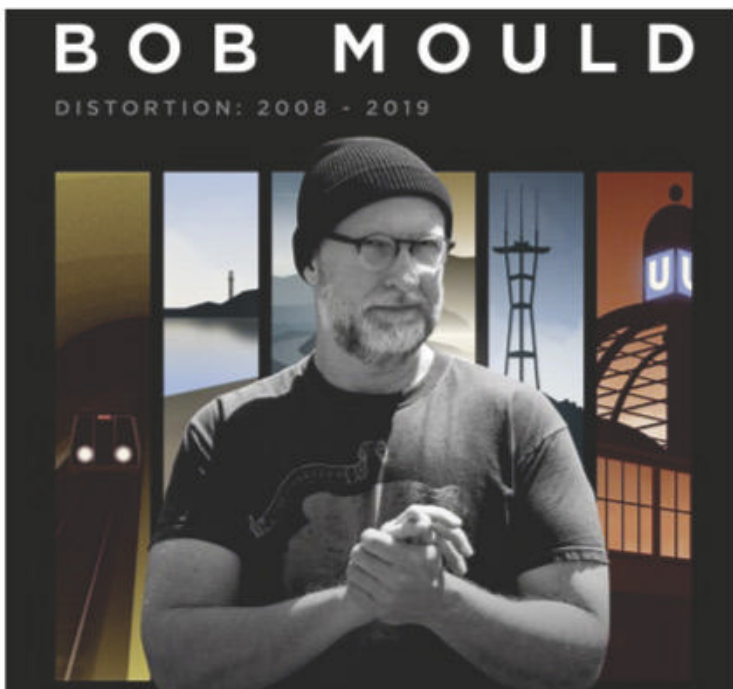
It was recorded between London and Alabama with the aid of, among others, the Muscle Shoals Rhythm Section and Free guitarist Paul Kossoff, but Jim Capaldi's third solo album is anything but the sound of a rock star indulging himself.

With Steve Winwood on bass, opener *Goodbye Love* oozes self-assurance, while an equally breezy *Keep On Trying* comes complete with trombone from future Special Rico Rodrigues. There's depth beneath the slinky grooves, however. The title track's message of impending eco-disaster feels more prescient than ever, powered by Chris Spedding's searing guitar lines. Throw in jukebox classics *Love Hurts* and *It's All Up To You*, and you wonder why it's taken so long for this album to go digital.

**Paul Moody**







## BOB MOULD

### Distortion: 2008-2019

Six vinyls plus bonus: his best solo work.

**B**ob Mould's place in music history was already assured thanks to the pioneering ramalama of Hüsker Dü. Fusing the fury of punk rock with the melodic sensibilities of The Beatles, the trio paved the way for disciples Pixies and Nirvana without ever breaking out of their cult *cul de sac*. But it's with his work following the band's implosion that the singer-guitarist found his widest audience, first with Sugar and then forging out on his own.

What makes this third vinyl box set chronicling his career so satisfying is that it marks the point when Mould began his journey back to the blueprint he'd established and perfected. So while 2008's 'District Line' sees Mould still within the slipstream of electronic flourishes and milder acoustic moments, it's with the four-album run from the superlative 'Silver Age' through to the fizzing 'Sunshine Rock' that he truly hits his latter-day stride.

Anchored by bassist Jason Narducy and drummer Jo Wurster, Mould's return to the power-trio format reaped rich rewards in the shape of glorious overdriven pop. The inclusion of collaborations with Foo Fighters and Butch Walker seal the deal, while Mould's cover of Buzzcocks' *I Don't Mind* reveals his roots. Essential.

Julian Marszalek

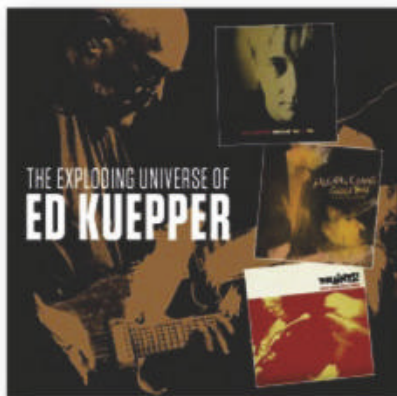
## ED KUEPPER

### The Exploding Universe Of...

**I**n typical belligerent Kuepper style, he has released three collections to celebrate 45 years as a recording artist (beginning as guitarist in The Saints). For fans, the double album of solo singles, 'Singles '86-'96', is near-nirvana, the first time they've been collected together, featuring timeless classics such as *Also Sprach*, the downbeat splendour of *Nothing Changes In My Heart* and many others — the essence and soul of isolationist windswept reckless Australian rock. Laughing Clowns' 'Golden Days' is, if possible, even finer, an entry point into the pantheon of a great live band. Debut UK single *Mad Flies*, *Mad Flies* puts every rival in the shade, and it's not even the greatest song here.

If 'Live At Marrickville Bowlo' by The Aints! — pulled together from tracks Kuepper wrote during and prior to the formation of The Saints ('69-'78) — paled in such company it would be no disgrace. But it doesn't. Everything the man does is honey-spun gold.

Everett True



## PAUL & LINDA MCCARTNEY *Ram*

Time has been kind to Sir Macca's second post-Beatles album.

**I**t has been 50 years since 'Ram' was first released, and EMI has given fans the chance to buy it again in a half-speed mastered mix that is, like all the other mixes and reissues, slightly shinier than before. The only other difference is that caused by the passage of time, which has wrought great changes on 'Ram'.

When this album — credited to Paul and Linda McCartney for publishing reasons, and beginning Paul's long career of annoying chart compilers by crediting records differently every time — came out in 1971, it was not greeted, as it has been for most of the 21st century, as a little masterpiece or a brilliant set of wonderfully-crafted songs, but as the work of the man who had broken up The Beatles, thereby single-handedly fucking up the 1960s dream for everyone. And so where now we hear the beauty of *The Back Seat Of My Car* (side one of *Abbey Road* in a single song) or the daft versatility of *Uncle Albert/Admiral Halsey* (side two of *Abbey Road* in a single song), in 1971 critics heard laziness, self-indulgence and spite (of which there was some in the frustrated anti-Beatles court case song *Too Many People*, the lyric of which sparked off Lennon's angrier responses on 'Imagine'). It also didn't help that 'Ram' was the (better-produced) follow-up to 'McCartney', Paul's debut solo album, and like that record was full of small ideas, beautifully realised but lacking the wide musical ambition that The Beatles were famous for (it's hard to remember now, but all the ex-Beatles found it difficult for years to escape the show of their enormous past). What we now see as a charming and understandable response to the epic grandeur of 'Abbey Road' and 'Sergeant Pepper' was then seen as half-arsed and idle, with a world briefly besotted with the idea that the true solo talent in The Beatles was clearly George Harrison. And where now we enlightened many see 'Ram' as McCartney's acknowledgment that men grow up and that having a family is not the death of the soul but rather another step on life's journey, panic-stricken fans and critics in their early thirties used words like 'muzak' and 'cosiness' to put down the music on 'Ram'.

Time, however, is even better than a half-speed remaster, and 'Ram' stands revealed as a good album with some great songs on it.

David Quantick





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## CLASSIC ALBUM: Red Hot Chili Peppers — *Blood Sugar Sex Magik*

The Chilis mature, musically at least, with Rick Rubin.

In many ways 'Blood Sugar Sex Magik' is the Chilis' finest hour. It's the link between the hard-nosed funk rock of their early years and the smoother style that has propelled them to superstar status. The return of guitarist John Frusciante, after a brief drug-related absence, energised the band like never before. And the songs are uniformly stunning: *Suck My Kiss* and *Under The Bridge* are among the decade's most glorious.

At first, frontman Anthony Kiedis didn't know whether he wanted his band to work with infamous producer Rick Rubin on the album. Somehow he felt that the chemistry might not be right.

"We didn't know if he would be able to blend in well, what with Slayer and the boiling goat heads of Danzig and all," Kiedis admitted later, referring to Rubin's previous work. "But he turned out to be a completely open-minded, free-flowing, comforting spirit. If Baron von Munchausen were able to ejaculate the Red Hot Chili Peppers onto a chess board, Rick Rubin would be the perfect player for that game." (We have no idea what he means.)

Kiedis's reservations were understandable. The tail end of the '80s had hit the band hard — drug addiction, the death of founding member guitarist Hillel Slovak from a heroin overdose and drummer Jack Irons quitting the band — but had resulted in an upturn in their commercial fortunes. With guitarist John Frusciante and drummer Chad Smith now in place, 1989 would be the band's breakthrough year. Their album 'Mother's Milk' — featuring Slovak and Irons on a cover of Jimi Hendrix's *Fire* — broke them on MTV in the US with the highly charged videos for *Knock Me Down* and a furious cover of Stevie Wonder's *Higher Ground*.

Famously, Rubin found a mansion, built in 1917, out on Laurel Canyon Boulevard as the place to record the sessions that would make up 'Blood Sugar Sex Magik'. Drenched in history, the mansion had played host to gangsters; Hendrix stayed there briefly; The Beatles hung out and partied there...

The Chilis adored their new surroundings and spent seven weeks there in almost total exile, discouraging interruptions from outsiders, and all the while taking comfort from the host of friendly spirits that they said haunted their temporary home. In 'Funky Monks', the group's long-form video of the making of the album, it becomes apparent just how much their recording location had freed them up creatively: at one point Flea plays along with *Mellowship Slinky In B Major* and *Apache Rose Peacock* on two tiny children's pianos; seated at the bottom of the main staircase, the band thrashed along on hubcaps and an empty milk churn for the jangling middle-eight of *Breaking The Girl*. Anything, it seems, went.

"The album had no verbal or intellectual goals," Frusciante elaborated. "We just woke up each morning and played what we felt best to play... making music in the same way that a flower grows. We were just in our own dimension. The rest of the world didn't exist, and we were living in a world of unbridled imagination."

The band recorded 25 songs, of which 22 were originals, and 17 made the final cut. One of these was infamous blues legend Robert Johnson's *They're Red Hot*, which was recorded outside at night, with the sound of cars speeding through the valley below as the band jammed the song playing on a Persian rug laid over the long grass. The sessions also yielded the elegant *Soul To Squeeze*, which mystifyingly never made the album but was released as a single in the US in 1993.



The album itself reflected a more refined and mellow Chili Peppers, both musically and lyrically. *I Could Have Lied* and *Breaking The Girl* — with Frusciante's chiming acoustic guitar — gave way to a less relentless band opening up to new new ways of translating their groove, though they were still capable of bombast and heavy funk, with the monstrous *Give It Away* coming out of a Flea-inspired jam by which Kiedis was instantly smitten. The

grotesque caricature featured in *Sir Psycho Sexy* had them barracked as sexist and irresponsible, but the lyric is so plainly cartoon-like and fantastical that any criticism seems misguided and reactionary.

*My Lovely Man* was a love letter that Kiedis sent to Hillel: 'Well I'm cryin'/Now my lovely man/Yes I'm cryin'/Now and no one can/Ever fill the hole you left, my man/I'll see you later/My lovely man, if I can...'

He recorded his vocals for the song at night in a makeshift booth set up at a window overlooking the overrun grounds, with a square of candles lit along the walls at his feet.

But it was with *Under The Bridge* that the band struck creative and commercial gold. Kiedis took his enduring love of the band's adopted home city, Los Angeles, personifying it ('I drive on her streets/'Cause she's my companion/I walk through her hills/'Cause she knows who I am') and making it his starting point before reflecting on his downtime there as a heroin addict.

On the band's final day at the house, Frusciante, arms full of clothes and CD cases, remarked that he'd never felt so proud of anything he'd ever done in his life. Flea insisted that as long as the band could keep their love for the music and for one another, then there was no way they could ever fail. +



## Headphones

### On/over-ear headphones

Every model listed here has won a Sound+Image award – but consider also what functions you need, as well as the prices. Open-backed models can have a thrilling airy sound that closed models can't match, while cables often beat Bluetooth for best sound. But for commuting or long distance, closed wireless noise-cancellers can bring an isolation worth paying for.

#### YAMAHA HPH-W300

W2019 / \$249 / [au.yamaha.com](http://au.yamaha.com)



Yamaha delivers some fine headphones, and these \$249 over-ears deliver cabled sound and quality of build that far exceeds their price, and there's wireless Bluetooth as well for convenience.

#### SENNHEISER HD 560S

W2021 / \$320 / [www.sennheiser.com.au](http://www.sennheiser.com.au)



These open-backed home headphones demonstrate what Sennheiser does best – natural and high-value shining sound, a reminder of the performance headstart granted by cable rather than Bluetooth.

#### BEYERDYNAMIC AMIRON HOME

W2020 / \$799 / [www.beyerdynamic.com.au](http://www.beyerdynamic.com.au)



Open headphones which deliver endless clarity and delight when used at home driven by a good headphone amplifier (such as beyerdynamic's own!) able to drive their 250-ohm load.

#### SENNHEISER HD 660S

W2019 / \$799.95 / [www.sennheiser.com.au](http://www.sennheiser.com.au)



Open-backed home headphones which deliver tunes old and new as if piped fresh from the studio, with music flowing effortless and free. A joyous headphone with high comfort for long sessions.

#### STAX SRS-3100 SYSTEM

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Electrostatic 'ear-speakers' paired with the required driver unit to deliver that Stax sound so detailed, so revealing, that it results in an entrancing and relaxing listening experience.

#### STAX SR-009S/SRM-700S

W2021 / \$13,650 / [www.audiomarketing.com.au](http://www.audiomarketing.com.au)



Taking electrostatic Stax performance to the heights of beguiling and scintillating sound from this combo of \$7750 'earspeakers' and \$5900 driver – full and rich, fluid and airily magnificent.

#### JBL LIVE 650BTNC

W2020 / \$279.95 / [www.jbl.com.au](http://www.jbl.com.au)



This trio of wireless noise-cancelling 'phones has to start with JBL's bargain 650BTNC, which is loaded with tech via the app yet deliver sound beyond the price, and even better using the cable.

#### SENNHEISER MOMENTUM WIRELESS

W2020 / \$499.95 / [www.sennheiser.com.au](http://www.sennheiser.com.au)



Sennheiser's leading wireless noise-cancellers, the mk3 Momentums are smart in many ways, with excellent customisation, sound quality in spades, and market-leading noise cancellation.

#### DALI iO-6

W2021 / \$699 / [www.ambertech.com.au](http://www.ambertech.com.au)



DALI nails the wireless noise-cancelling category with its very first headphone. Built using the principles of speaker design, the iO-6 delivers thrillingly rich and musical sound in a luxurious and tactile design.



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### Wireless speakers

The most modern of hi-fi, from portable Bluetooth speakers to large all-in-one wireless units which can challenge separates systems, there seem no limits to the technology being incorporated to achieve convenience along with sound quality. Check your preferred services and filetypes are covered, then sit back and enjoy all the app-enabled extras.

#### JBL LINK MUSIC

W2021 / \$169.95 / [www.jbl.com.au](http://www.jbl.com.au)



The mains-powered Link Music offers great sound for the price, with Wi-Fi, Bluetooth, full Google Assistant abilities and AirPlay 2. For our money JBL pretty much rules the value-per-dollar roost at this price and below.

#### JBL LINK PORTABLE

W2021 / \$249.95 / [www.jbl.com.au](http://www.jbl.com.au)



With Bluetooth, Google Assistant, AirPlay 2 and battery operation, the JBL Link Portable is a winner at home and away, although there's a price for battery operation, given that the Link Music (left) is both cheaper and better-sounding.

#### AKTIMATE MINI+ B

W2018 / \$450 / [www.aktimate.com.au](http://www.aktimate.com.au)



The Bluetooth version of these archetypal active speakers (you get two) developed in Australia are still available and kick quite remarkable butt given the current special pricing. Still awesome.

#### HEOS 5 HS2

W2000 / \$649 / [www.denon.com.au](http://www.denon.com.au)



All the standalone HEOS speakers are making way for the Denon Home range (right), but the most recent HS2 version of the sweet-spot HEOS 5 midranger is still available, and remains attractive.

#### DENON HOME 250

W2021 / \$849 / [www.denon.com.au](http://www.denon.com.au)



Neatly replacing the HEOS 5 (left), the midrange Home 250 offers solid sonic performance backed by the HEOS wireless multiroom platform's easy and extensive access to streaming music.

#### YAMAHA NX-N500

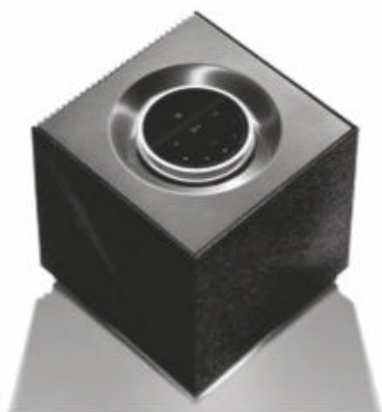
W2016 / \$999 / [au.yamaha.com](http://au.yamaha.com)



Now officially discontinued, but we can't bring ourselves to remove this magnificent MusicCast pair from our recommendations. Hunt them down.

#### NAIM MU-SO Qb 2nd GENERATION

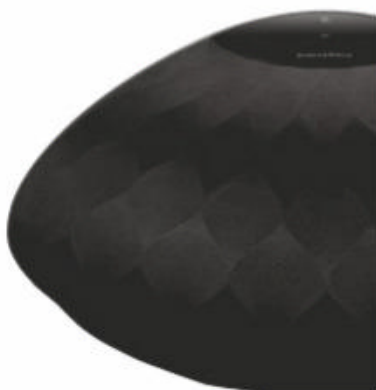
W2021 / \$1475 / [www.busisoft.com.au](http://www.busisoft.com.au)



Find the right home for the Naim Qb and you won't be disappointed in its sound, while the app, remote and useful inputs all score points too.

#### BOWERS & WILKINS FORMATION WEDGE

W2021 / \$1499 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



Despite offering zero physical inputs, the Formation Wedge is an undoubtedly premium performer in the wireless speaker space, with real visual style and luxuriously expansive sound.

#### KEF LSX

W2020 / \$1999 / [www.advanceaudio.com.au](http://www.advanceaudio.com.au)



Though pricey, there's true stereo performance hitting wireless highs from KEF's colourful, compact, user-friendly and UniQ-equipped little LSX speakers.

#### NAIM MU-SO 2nd GEN

W2020 / \$2600 / [www.busisoft.com.au](http://www.busisoft.com.au)



In 2014 Naim made the world's best one-box wireless speaker. Now with the second generation, they've made it even better, though also a bit pricier.

#### DYNAUDIO XEO 20

W2019 / \$2999 / [www.busisoft.com.au](http://www.busisoft.com.au)



The simplicity of an active speaker solution with Bluetooth plus expandable inputs and outputs, plus the design wisdom of a classic Danish speaker brand.

#### BOWERS & WILKINS FORMATION DUO

W2020 / \$6400 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



Entirely wireless, slightly odd-looking and not cheap, but the Duos are real active hi-fi speakers from the Formation range by one of the world's best speaker brands.



## Amplifiers

### Stereo amplifiers

Amplifiers are all about the power to drive your speakers, and different amplifiers use different technologies to do that. Also you can't just compare power ratings, because these are quoted in a myriad different ways (often overly favourably). And now amps are smart, with digital inputs and often streaming, so there's much to consider. Here are our award-winning picks.

#### BLUESOUND POWNODE 2i

W2020 / \$1549 / [www.bluesound.com.au](http://www.bluesound.com.au)


The benefits of NAD-derived power allow Bluesound to take the Pownode 2i's streaming performance to the next level.

#### CYRUS ONE CAST

W2021 / \$1999 / [www.indimports.com](http://www.indimports.com)


With streaming, HDMI audio and voice control, the Cyrus One Cast is smart, while delivering power aplenty for a solidly musical hi-fi sound.

#### CAMBRIDGE CXA81

W2021 / \$2499 / [www.synergysaudio.com](http://www.synergysaudio.com)


The Cambridge CXA81 is well-designed and equipped, while its amps drove music with the timing, separation and power of true hi-fi.

#### NAD M10

W2020 / \$4499 / [nadelectronics.com.au](http://nadelectronics.com.au)


A simply sensational smart amplifier, with high-level power taking the streaming multiroom BluOS platform to a new level.

#### ARCAM SA30

W2021 / \$4995 / [www.advanceaudio.com.au](http://www.advanceaudio.com.au)


Recognisably Arcam still, though now under Harman and Samsung, the SA30 combines classic strengths with modern streaming.

#### MARANTZ PM-KI RUBY

HC2020 / \$8490 / [www.marantz.com.au](http://www.marantz.com.au)


The perfect pair for the award-winning Ruby CD player, the PM-KI amp uses Hypex Ncore amplification modified by the guru's tuning.

#### NAD MASTERS M33

W2021 / \$8499 / [nadelectronics.com.au](http://nadelectronics.com.au)


It's quality all the way with the M33 — it has the looks, the app, the streaming, the inputs, the control, and best of all, wondrous sound.

#### KRELL K-300i

W2020 / \$11,499 / [www.indimports.com](http://www.indimports.com)


Krell's most affordable amplifier yet (and \$2k cheaper without the digital input module) doesn't lack for either power or finesse.

#### MUSICAL FIDELITY M8xi

W2021 / \$12,000 / [audiomarketing.com.au](http://audiomarketing.com.au)


More power than you'll ever need, super-low distortion, a great range of inputs, plus it sounds superb... this is serious amplification.

#### HEGEL H590

W2020 / \$14,995 / [advanceaudio.com.au](http://advanceaudio.com.au)


Immensely powerful, totally musical, focused fully on sound quality, the H590 shows why the Norwegian brand is gathering such praise.

#### BOULDER 866

W2021 / \$20,500 / [www.absolutehiend.com](http://www.absolutehiend.com)


A unique amplifier, with a spectacularly powerful and musical performance and astounding control over bass frequencies.

#### HALCRO ECLIPSE MONO x 2

W2020 / \$91,000 / [halcro.com](http://halcro.com)

Aussie Halcro makes its return with a new pinnacle of amplification, staggeringly real and a thing of beauty in every way. The price here is for a pair.





## Pre-power amplifiers

Separating the switching pre-amplifier from the power amplification allows both sections to perform to their best without interfering with each other. It's entirely possible to mix brands, but our recommendations here are limited to branded pairs, which are a fair promise of electrical compatibility as well as an aesthetic match. Every pair here is an award winner.

### CAMBRIDGE AUDIO EDGE NQ/W

W2020 / \$7999 (pre) + \$5999 (power) / [www.synergyaudio.com](http://www.synergyaudio.com)



A thrilling combination of thoroughly modern preamp (smart, app controlled, streaming) and utterly purist power amp, this pre-power pair performs magnificently far beyond its price, one of our 2020 listening highlights.

### MICHI P5 / S5

W2021 / \$5999 (pre) + \$10,399 (power) / [www.interdyn.com](http://www.interdyn.com)

Michi ('righteous way' in Japanese) is to Rotel as Lexus is to Toyota, a brand that delivers something above. And this pre-power combo proved simply superb. If the Michis were actual musicians, as they so often sounded to be, we would be on our feet calling for an encore.



### YAMAHA C-5000 / M-5000

W2020 / \$12,999 + \$12,999 / [au.yamaha.com](http://au.yamaha.com)



Yamaha's relatively recent nourishing of its two-channel audio ranges reaches its zenith with the 5000 Series from which this powerfully musical pre-power pairing delivers what Yamaha calls 'True Sound', exceptionally transparent, dripping with the emotion of original performances across any genre.

### MCINTOSH C53 / MC462

W2021 / \$14,995 (pre) + \$20,995 (power) / [www.synergyaudio.com](http://www.synergyaudio.com)

An amplification pair that has no audible noise at all for low to normal listening levels, but which can also kick serious arse — because it's a McIntosh pre-power. Spending mere review time with this pair, let alone owning them, delivered absolute bliss throughout long extending listening sessions.



### DAN D'AGOSTINO PROGRESSION PRE & PROGRESSION STEREO

W2019 / \$33,395 + \$33,395 / [www.advanceaudio.com.au](http://www.advanceaudio.com.au)



D'Agostino's Master Audio Systems amplifiers are all astounding, and this stereo preamp plus stereo power amp pair proved to deliver the very heights of hi-fi performance while looking awesomely desirable into the bargain. Though bargain may not be quite the right word here.



## Loudspeakers

### Standmount loudspeakers

The ultimate sound requires the ultimate loudspeakers — and on these pages you can see those that have impressed us above all others to win our Sound+Image awards. Standmounters are not only for small spaces: they often achieve a tighter cleaner sound that some prefer to floorstanders, whatever the room. Budget for proper speaker stands if you can.

#### Q ACOUSTICS 3010i

W2020 / \$549 / [www.busisoft.com.au](http://www.busisoft.com.au)



If you're seeking a dinky bookshelf speaker which delivers, these smaller standmounts of two in the 3000i range from Q Acoustics sound precise, coherent and spacious beyond their price.

#### RICHTER MERLIN S6

W2020 / \$1100 / [www.richter.com.au](http://www.richter.com.au)



Richter's new standmounts are better than ever — more efficient, more user-friendly, and sounding fine indeed, a tribute to the Australian design team delivering the new Richter Series 6.

#### BOWERS & WILKINS 606 S2 ANNIVERSARY

W2021 / \$1299 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



Even better than the standard 606 S2 and resplendent in the new oak finish with white baffle, these are standmounters that truly sing, sounding taut, natural transparent. Stands cost \$349.

#### BOWERS & WILKINS 707 S2

W2018 / \$1599 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



Small, yet as lovely to hear as they are to behold, the 707 S2 speakers are mini marvels of high fidelity, just 28cm high, in white or gloss black as well as this rosenut. They love high quality power.

#### DEFINITIVE TECHNOLOGY DEMAND D9

W2019 / \$1799 / [www.qualifi.com.au](http://www.qualifi.com.au)



The Demand D9 knocked us out with its sound at the price plus solid build and neat tech, unusual in having a large passive bass radiator on the top, delivering bass which supports brilliant imaging here.

#### CHARIO CONSTELLATION DELPHINUS

W2020 / \$2599 / [www.audiodynamics.com.au](http://www.audiodynamics.com.au)



A longstanding Italian brand, though they were new to us, and knocked out their rivals in last year's awards with fine and pure-sounding performance with sweet treble and impressive bass.

#### KRIX ESOTERIX ALTUM

W2018 / \$6995 / [www.krix.com.au](http://www.krix.com.au)



South Australia's Krix knows a thing or two about horns, and the waveguide on their stereo standmounts delivers outstanding imaging and high-end performance also giving an impressively extended bass.

#### JBL L100 CLASSIC

W2019 / \$8499 / [www.convoy.com.au](http://www.convoy.com.au)



A standmounter that's too big for a bookshelf, JBL's modern reinvention of its classic L100 is a taste of the golden age of hi-fi, with the classic JBL tone and that Quadrex foam grille to nail the look.

#### YAMAHA NS-5000

W2018 / \$20,000 / [au.yamaha.com](http://au.yamaha.com)



Another large standmount which summons up the classic hi-fi era in an all-new design, Yamaha's NS-5000 heralded the company's two-channel revival with fine performance.

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## Floorstanding loudspeakers

Floorstanders often don't take up any more space than standmount speakers on their stands, yet the extra cabinet volume and drivers can deliver more energy to the room, and more depth. At the higher prices you're not only getting state-of-the-art sound and technology, but also objects of true beauty, often bringing artisan craftsmanship to your home.

### Q ACOUSTICS 3050i

W2019 / \$1599 / [www.busisoft.com.au](http://www.busisoft.com.au)



The value here is remarkable given the quality of styling and finish plus a sound with detail and tone that allows a close intimacy when required, but also full, weighty and driving when given power.

### RICHTER HARLEQUIN S6

W2021 / \$1899 / [www.richter.com.au](http://www.richter.com.au)



The latest Aussie-designed Harlequins deliver Richter's signature size and quality of sound with precision and accuracy from a stylish and usefully compact floorstander; outstanding value.

### PARADIGM PREMIER 800F

W2021 / \$3499 / [www.audioactive.com.au](http://www.audioactive.com.au)



Superb Canadian-built value, with the overall frequency balance just perfect, a natural sound serving all genres of music beautifully, assisted by tech including PPA lenses over both tweeter and midrange.

### Q ACOUSTICS CONCEPT 500

W2018 / \$7999 / [www.busisoft.com.au](http://www.busisoft.com.au)



A third entry by Q Acoustics in these pages confirms their ability to deliver value at multiple levels, especially at their favourable pricing here in Australia. Glorious premium performance.

### JBL SYNTHESIS HDI-3600

W2021 / \$7999 / [www.convoy.com.au](http://www.convoy.com.au)



Magnificent imaging and tonally integrated with great JBL bass, a smooth fluid midrange and extended highs from the compression drivers with High Definition Imaging (HDI) waveguides: wonderful speakers.

### DYNAUDIO EVOKE 50

W2020 / \$8499 / [www.busisoft.com.au](http://www.busisoft.com.au)



A fine Dynaudio model which hits the modern slimline aesthetic yet they sound way bigger, with these true three-ways bringing extended and effortless bass, superb midrange and transparent highs.

### REVEL PERFORMA3 F208

W2019 / \$9995 / [www.convoy.com.au](http://www.convoy.com.au)



These Revels are gorgeous speakers to look at, but it's their sound that won our award — energy without aggression, so accurate, so musical, so natural-sounding that we were captivated.

### VIVID AUDIO KAYA 25

W2021 / \$15,000 / [www.avation.com.au](http://www.avation.com.au)



Standing like modern sculptures of sound, the junior floorstander of Vivid's Kaya range exploits the company's driver expertise and curved cabinets all in the service of sound, the Kaya 25s fully energising a room.

### GOLDENEAR TRITON REFERENCE

W2019 / \$18,500 / [nationalavolutions.com.au](http://nationalavolutions.com.au)



Hand-rubbed piano-gloss towers that include 1800W of amplification to drive the bass drivers, while the mid/treble is conventionally powered. The results are magnificent.

### REVEL PERFORMA F228BE

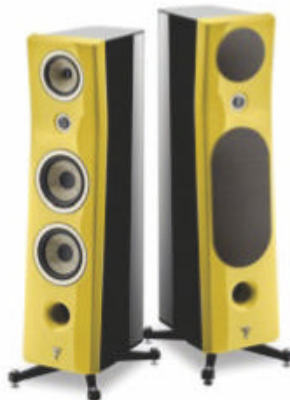
W2020 / \$18,995 / [www.convoy.com.au](http://www.convoy.com.au)



Revel was on a roll with back-to-back floorstander awards in 2019 and 2020, here for the beryllium-tweetered F228Be, a work of art in both design and neutral, extended performance.

### FOCAL KANTA NO.3

HC2020 / \$20,500 / [www.busisoft.com.au](http://www.busisoft.com.au)



The French folk at Focal deliver some amazing designs, available here with coloured or wood veneer baffles, and we loved the sound from the beryllium inverted dome tweeters and flax sandwich drivers.

### BOWERS & WILKINS 800 D3

W2018 / \$43,900 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



A reference among references — you really shouldn't buy at this price without at least auditioning the 800 D3, with its diamond tweeter dome and studio-sanctioned sound.



## Subwoofers

### Subwoofers

While many people think of subwoofers only in a home cinema context where they deliver the deepest thrills of movie soundtracks, they can be equally useful in a stereo music system, deepening the response of floorstanders as well as standmounts, and taking the load off the main speakers which can then perform to their best with the rest of the spectrum.

#### RICHTER THOR 10.6

W2019 / \$1699 / [www.richter.com.au](http://www.richter.com.au)



Aussie company Richter has succeeded where most have not in building a small and versatile subwoofer that doesn't sound small at all. Versatile too, with tuneable bass ports and three-mode DSP.

#### KRIX TEKTONIX

W2012 / \$1745-\$2095 / [www.krix.com.au](http://www.krix.com.au)



Krix brings high tech to its 'mid-size' (11-inch cone) subwoofer with a superb sub for across a wide range of uses, whether purist stereo-only or multi-channel.

#### KRIX VOLCANIX

HC2011 / \$2095-\$2515 / [www.krix.com.au](http://www.krix.com.au)



Another superb Australian sub with 12-inch cone and adapted ICEPower. It works beautifully, 'sonically invisible' in large systems or with small to medium-sized stand-mount/bookshelf speakers.

#### SUNFIRE HRS-10

HC2015 / \$2549 / [www.qualifi.com.au](http://www.qualifi.com.au)



Great bass from a small enclosure seems *de rigueur* from Sunfire – confirmed by the performance of the HRS-10's 1000W Tracking Downconverter amplifier and long-throw 10-inch woofer.

#### BOWERS & WILKINS DB4S

W2021 / \$2799 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



The DB4S delivers rich, satisfying, full-bodied bass from an attractive cabinet with a single B&W Aerofoil cone, along with sophisticated app control for fine adjustment.

#### DYNAUDIO SUB 6

W2020 / \$4299 / [www.busisoft.com.au](http://www.busisoft.com.au)



It's not only the size of sound from Dynaudio's dual-driver compact subwoofer but also its quality that makes the Sub 6 such a marvel of low-frequency performance.

#### BOWERS & WILKINS DB1D

W2019 / \$7500 / [bowerswilkins.com/en-au](http://bowerswilkins.com/en-au)



Hugely powerful — 2000W of power driving twin 12-inch cone, and accurately too, plus built-in room equalisation and the useful versatility of other settings using an iOS/Android app.

#### MAGICO ASUB

W2021 / \$11,500 / [www.absolutehiend.com](http://www.absolutehiend.com)



A phenomenally good-sounding high-performance subwoofer for both home cinema and stereo use, with astoundingly flexible computer-based room and speaker tuning.

#### PARADIGM SIGNATURE SUB 2

W2011 / \$15,999 / [www.audioactive.com.au](http://www.audioactive.com.au)



Hexagonal design using multiple radially-aligned high-excursion drivers to generate astounding bass (7Hz anyone?) — Paradigm's SUB2 delivers solid bass without limits.

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