

Avalon Compás

Are you craving the speaker of your dreams? Perhaps Avalon's Compás model will satisfy your yearnings
 Review: John Bamford Lab: Keith Howard

I didn't need much persuading when the editor informed me he'd like me to audition Avalon Acoustics' recently introduced Compás loudspeaker. An imposing floorstander costing as much as a Mercedes, you say? Well alright then, twist my arm...

It is an arresting loudspeaker, standing nearly 4ft tall and weighing 72kg, although Avalon's signature multi-faceted baffle design helps it look less imposing in a living room than were it a traditional flat-baffled monolith. It's a three-way system in a vented cabinet. Hidden behind its solitaire-shaped grille cover lies a complement of drivers with concave ceramic cones: a 1in tweeter with a neodymium magnet providing the motive force and a 4in midrange unit, with twin 9in ceramic/honeycomb woofers. They are made exclusively to Avalon's specifications by specialist drive unit manufacturer Thiel & Partner GmbH of Germany whose drivers are marketed under the Accuton brand name.

If you're thinking, 'Those drivers' inverted ceramic cones look familiar,' you'd be correct. Avalon Acoustics' owner and chief designer Neil Patel is not alone in holding Accuton ceramic membrane coned drivers – and the German company's chemical vapour deposition (CVD) diamond tweeters too – in high regard. Accuton-derived drivers can be found in loudspeakers from Marten Design, Lumen White, Lindemann and others. The foam-like micro structure of the cones' ceramic membranes results in a high stiffness-to-weight ratio and advantageous inherent self-damping.

Says Neil Patel: 'While many audio designers consider a speaker's *drive units* to be the critically fundamental key to a great sounding loudspeaker – and make a virtue of having as simple a dividing network as possible – I take a different view. I think of a drive unit as being a muscle in the body. No matter how good it

is, it can't operate without instructions from the brain.'

'When working on a new speaker design I deliberate on the driver complement and its specifications, my network design *and* the enclosure as a complete entity: each and every aspect of the loudspeaker affects the others.'

A QUICK RESPONSE

While coy about the details of his specified Accuton drivers and remaining tight-lipped about the elaborate network designs in his loudspeaker models, other than to say that he strives to keep the noise floor as low as possible and that the power response and frequency response must track together to avoid distortions of image size, he relishes discussing the *sound*

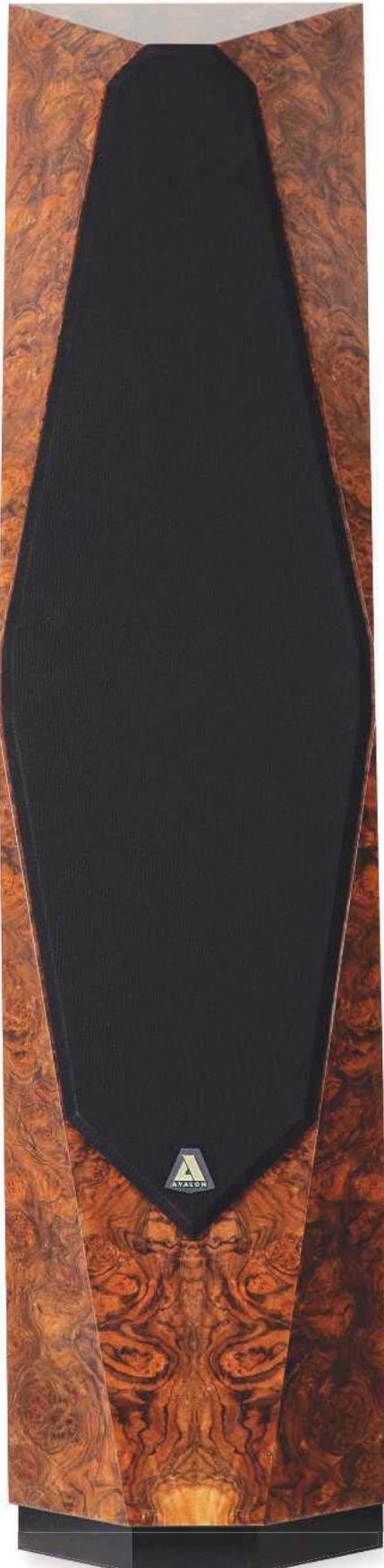
he strives for in each model in his company's portfolio.

'For the Compás, I wanted it to be a quick-footed communicator of dynamics and timing,' he says. 'I didn't mind if it sounded *slightly* lean – I really wanted to make a speaker that stirred the emotions with unsurpassed rendition of transients.'

Situated in the foothills of the Rocky Mountains in Colorado, Avalon Acoustics makes its cabinets entirely in-house, employing skilled artisans who do much of the elaborate woodworking and custom veneering entirely by hand. Befitting its price, the Compás employs a labyrinthine enclosure that's extensively braced for strength and rigidity, constructed by milling cross-sections of MDF that are built up in several layers and glued and

RIGHT: Cabinets have acutely chamfered baffles to minimise diffraction effects and you should listen with the grilles in situ. Metal 'punch nets' protect the ceramic cones of the four Accuton drivers from accidental damage

"I really wanted to make a speaker that stirred the emotions"



FULLY CLOTHED

Some people in the audio industry, including some leading figures, believe that loudspeaker diffraction effects – the re-radiation of sound from sharp cabinet edges and the interaction of grazing-incidence radiation with baffle features such as the cones of other drive units – have no audible effect, despite their inherent time-smear. Avalon Acoustics designer Neil Patel clearly doesn't have much truck with that nonsense. His speakers use faceted cabinets to minimise diffraction effects (although we're more used to seeing rounded cabinet forms used for this, Olson showed decades ago that bevelled cabinet shapes are also effective) and he goes to the unusual length of making the grille covers an integral part of the diffraction control regime. So don't remove them, OK! KH

pressed together. The drivers for HF, midrange and LF reside in individual chambers within a complex reflex enclosure that vents at the base of the cabinet. The integral 'plinth' on which the main cabinet sits forms a shallow skirt around the front and sides, and remains open at the rear. The whole structure sits on three elegantly sculpted spikes called Apex Couplers. These are milled from aluminium and screw into threaded inserts in the skirt. They must be used to ensure adequate ground clearance for the venting.

While eschewing the customary fashion for ultra-minimalist dividing networks, Avalon speakers are also unusual in being designed specifically for listening with the grilles *in situ* [see boxout above]. As our picture of the Compás with its grille removed reveals, there's a felt ring around the midrange unit, while to control dispersion further the grille has been purposely designed and incorporates a felt anti-diffraction mask. The user manual contains explicit instructions on how to ensure the felt mask is correctly positioned to avoid an air gap between the felt and the speaker face.

Metal grilles cover the drivers themselves. They ring like a bell if you tap them, which is rather disconcerting, but clearly the company feels they're necessary to avoid accidental damage to the ceramic cones. What clearly doesn't ring is the enclosure. It feels immensely robust with barely a hint of vibration felt when resting one's fingertips on the cabinet sides while banging out tunes at levels in excess of 100dB.

Says Neil: 'No combination of materials is totally immune from vibrating. Excessive reverberations must be eliminated, while tertiary low-level vibrations are harmonically integrated into the signal.' How this is achieved remains unclear, however.

CARDAS CONNECTOR

At the rear is what at first glance appears to be a solitary binding post. In fact it's an OEM design from Cardas Audio [www.cardas.com] which takes spades from either side. A rotary knob tightens both positive and negative leads simultaneously and provides a firm connection, although you must be careful to ensure your spade connectors are of standard length to avoid inadvertent shorting.

Neil says it's a fabulous connector to work with inside the cabinet, having generously-proportioned rhodium cups that allow a truly excellent solder joint to be made even when working with heavy gauge internal wire. Behind the terminal lies the speaker's network, contained in a sealed and inaccessible chamber. What little we know about the network is that it is hard-wired, 'eliminating the deleterious sonic effects of printed circuit boards'.

Beauty is, of course, in the eye of the beholder and your choice of veneer will be a subjective one. I say this because our review samples, which appear rather fetching in our photographs thanks to flattering studio lighting, were in a matt finish. Never have I seen such skilfully-matched burr walnut veneer look more like cheap vinyl! But it matters not, since the speaker can be specified in a variety of veneer options and lacquers. I would choose a highly polished gloss lacquer any ☺



LOUDSPEAKER

FLAGSHIP AHOY

Avalon Acoustics' owner and chief designer Neil Patel, whose passion for audio is highly infectious, has a background in neuro-physiology. He worked in cancer research, studying leukaemia in juveniles, before 'falling in with the wrong crowd' (as he jokingly puts it) and getting involved in high-end audio in the 1980s. He's been designing Avalons since the marque's formation by Charles Hansen. Electronics designer Jeff Rowland was such a fan of Avalon's first models that he invested in the company and was co-owner for a few years before selling his stake in the firm to Neil Patel in 1989. Neil later bought out Charles Hansen's share (who subsequently founded Ayre Acoustics) to become the sole owner – and has spent 20 years building a brand that is now distributed to some 50 countries.

He is currently finalising a new flagship dubbed Tesseract. A four-way system standing just shy of 2m tall, with diamond tweeter and ceramic midrange and mid-bass drivers, it will feature adjustable damping and gain matching – the lowest frequencies delivered by four 15in bass drivers powered by 2.5kW amplifiers and equalised in a proprietary isobaric transmission line. Preliminary images and specifications, along with a white paper outlining a set of engineering criteria that Neil feels need addressing in high-end speaker design, can be viewed on Avalon's website. The Tesseract is likely to cost around £250,000.



day, but it goes without saying you'd choose whatever matches harmoniously with your home furniture and décor. If you don't mind paying a premium, doubtless you can have your Avalons painted in polka dots. After all, they are hand-crafted...

PACKING A PUNCH

Once optimum positioning of the Compás had been established in Paul Miller's media room, listening to the speaker was as thrilling as one might expect given the design's credentials and the speaker's stature. Achieving deep and satisfyingly informative bass is hardly going to be an issue for any speaker of this size and cabinet volume. However, those twin woofers sure did energise the room effortlessly when under the vice-like grip of a pair of mono'd Devialet D-Premier amplifiers. The low frequency response is quoted to extend to 27Hz. We couldn't confirm this [see Lab Report, p33], but in-room the Compás packed a mighty punch, the bass clean and deeply – very deeply – satisfying, as you might expect from a floorstander costing more than many music lovers' entire systems, and then some.

Whether playing the The Beatles' 'Come Together' from the 2009 24-bit remaster of *Abbey Road* or recordings of Frank Zappa letting rip on a Gibson Les Paul on stage in the '80s from the *Shut Up 'N Play Yer Guitar* box-set of live recordings [EMI CDS 7 90084 2] the Compás demonstrated an ability to beguile and enthrall, with superb image stability and palpability.

UK distributor Kog Audio has found that many Avalon models often work at their best when firing directly forward, but in PM's room we preferred them with a modest toe-in, crossing just behind the hot seat. Of course, there can be no hard and fast rules governing positioning as every room is different.

Avalon Acoustics'

user manuals contain several pages of discussion on the subject of room acoustics and the likely subjective effects of various positioning regimes, offering useful advice where so many speaker manufacturers rarely seem to bother other than providing a pithy paragraph or two suggesting you experiment by making small adjustments. Doubtless at this level you'll be buying from a knowledgeable dealer who'll be doing the installing, and whose familiarity and experience with the speaker will ensure optimum performance.

Since our listening room was adequately large to allow the speakers to be placed



ABOVE: Reflex port vents at the base of the enclosure, so the supplied spikes must be used for correct ground clearance. Proprietary bass loading avoids twin impedance peaks

well clear of the rear and side walls they had ample space to breathe and create a solid sound field, serving up explicit images. Depiction of image depth was of the highest order, although the soundstage did seem a little narrow, rarely escaping the confines of the speakers' boundaries. Opening them up (reducing toe-in) would give a less-focused, more diffuse, but more expansive soundstage.

TAKING YOU THERE

The Compás came alive with the premium high-resolution material we auditioned.

One of my reference jazz tracks by the Helge Lien Trio, 'Bon Tempi' from the album *Natsukashii* [24-bit/192kHz download from highresaudio.com] – the ensemble recorded in Oslo's Rainbow Studios,

which has a pedigree for audiophile fare – revealed the ability the Compás has for transporting you to a musical event, suspending disbelief in a way that a bread-and-butter loudspeaker can't even begin to approach. In this instance, with the touch of keys on the piano and the ease with which you could differentiate between the pianist's left and right hand figuring. The attack and decay of the notes and the palpable movement of air within the recording space was equally 'real', all the while recreating the accompanying acoustic bass and drum kit with almost lifelike image size and dynamic realism. ↗



LEFT: Single Cardas 'CPBP' binding post at the rear accepts spade connectors offered up from either side. It's a neat design, but do be careful when hooking up, to avoid accidental shorting

exaggeration of sibilants. Perhaps the Compás was tearing these recordings apart. Certainly it doesn't flatter to deceive.

Harald Kloser's heart-rending title theme from the soundtrack to the film *The Day After Tomorrow* [Varèse Sarabande 302 066 572 2] was rendered with colossal gravitas, however, the 'dirty' electronic quality of the recording (unavoidably noticeable if you focus on the strings, which sound gritty and synthetic) was ruthlessly exposed by the Avalon Compás.

NEVER UNDER STRESS

Many years of listening to high-end speakers have taught me that no single design approach is clearly a cut about the rest. Whether a dynamic or panel transducer, point source or line source, it's the artful balance of attributes that is critical in making an overall design enjoyable to listen to.

In the case of the Compás I found the high frequencies and midrange to be creditably revealing without any obvious over-hyping of the presence region to make them artificially engaging – neither was there any particular sweet-spot in loudness or dynamic detail. Whether listening at low sound pressure levels or winding the wick up to 'party time', the Compás remained consistently well balanced and never appeared stressed. ☺

HI-FI NEWS VERDICT

At this price level you're going to buy a speaker that you simply fall in love with, not one that someone tells you you should adore. I found the Compás easy to listen to, curiously soporific with some recordings while adrenaline-fuelled and seat-of-the-pants-thrilling with others. You owe it to yourself to hear it in full flight. It's the work of an impassioned designer who is striving to push audio's boundaries.

Sound Quality: 78%

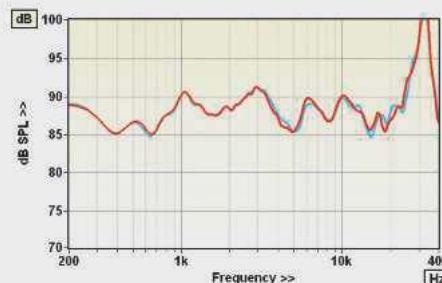


LAB REPORT

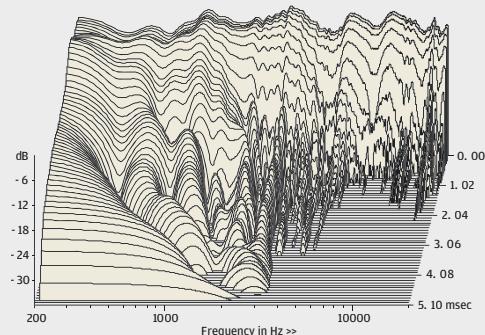
AVALON COMPÁS

Avalon claims a high 91dB sensitivity for the Compás but our pink noise figure of 88.1dB suggests that this is optimistic by about 3dB. Nevertheless the Compás has a low impedance, our measured minimum modulus of 2.9ohm falling a little below the 3.2ohm minimum suggested by the nominal 4ohm rating. The outcome might have been a testing EPDR (equivalent peak dissipation resistance) but for the fact that impedance phase angle is unusually well controlled, not least because of the proprietary bass loading which eliminates the twin impedance peaks expected of a reflex design. As a result the EPDR dips to a minimum of 1.7ohm at 130Hz – nothing untoward – and so the Compás rates as only a moderately testing load.

On-axis frequency response [Graph 1, below] is generally flat in trend but with distinct undulations, hence the response error figures of ±3.1dB and ±3.3dB respectively for the review pair. Over the same frequency range the pair matching error was a little high at ±1.4dB but the largest disparities occurred above 14kHz. Bass response couldn't be measured because the protective metal grilles over the ceramic-coned drive units prevent the measurement microphone being correctly positioned for near-field testing. The ultrasonic response peaks at about 32.7kHz – a little disappointing given that B&W's latest aluminium tweeters exceed this dome resonance frequency, despite the apparent superiority of the ceramic dome material used in Compás's Accuton tweeter. The cumulative spectral decay waterfall [Graph 2] also indicates the presence of breakup resonances within the audible band, particularly in the high midrange/low treble. KH



ABOVE: The forward response is essentially flat in trend albeit with rolling mid/treble undulations



ABOVE: Cabinet resonances are reasonably controlled but there are driver resonances in the mid and treble

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	88.0dB/88.1dB/88.5dB
Impedance modulus min/max (20Hz–20kHz)	2.9ohm @ 24Hz 10.8ohm @ 284Hz
Impedance phase min/max (20Hz–20kHz)	-38° @ 2.5kHz 39° @ 169Hz
Pair matching (200Hz–20kHz)	±1.4dB
LF/HF extension (-6dB ref 200Hz/10kHz)	See text / >40kHz/>40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.2% / 0.1% / 0.3%
Dimensions (HWD)	1140x280x430mm