

Perlisten S4b

Having wowed us with its flagship S7t floorstanders, Perlisten is looking to do more of the same with its DPC driver tech pressed into a more modest, room-friendly cabinet
 Review: **Mark Craven** Lab: **Paul Miller**

Perlisten Audio, a newly arrived loudspeaker manufacturer from Wisconsin, US [see boxout, p57], has already made an impressive entrance with its flagship model, the seven-driver S7t floorstander [*HFN* Apr '22]. Yet as that speaker boasts a £16,000 price tag – and a 59kg cabinet – many newcomers to the brand will look elsewhere in the range to see how far their budget can stretch. The £7200 S4b auditioned here isn't exactly 'affordable' but does come with a more manageable bookshelf build, plus the promise of a high-end performance similar to that of its towering stablemate, by virtue of shared technologies.

Okay, 'bookshelf' is perhaps something of a stretch. With dimensions of 420x240x300mm (hwd), and a weight of 11kg, the S4b is a compact speaker on steroids. A standmount installation will make sense in most environments, although the S4b has a quartet of screw-hole fixings on its rear to support wall-mounting via an optional bracket. Don't skimp on the rawl plugs, is my advice.

TWO STORIES

Wherever you put it, you'll be rewarded with a good-looking (albeit not 'classically styled') model with excellent build quality – these loudspeakers feel worthy of their asking price. The HDF cabinets are solid, as are the bi-amp binding posts mounted to the metal rear-plate, and the finish of our High Gloss Black sample was luxurious. The other option at the base price is High Gloss White, but for an extra £1520 you can enjoy four premium variants – High Gloss Ebony, Cherry Natural, Ebony Natural and Black Cherry Natural. Pantone special editions are also an option.

The S4b is a three-way loudspeaker, albeit with two distinct installations. Occupying the bottom half of the baffle, which is CNC machined both front and back to better accommodate the drivers

and improve airflow into the enclosure behind, is a 180mm 'Textreme' thin-ply carbon diaphragm (TPCD) woofer. This uses a layered construction and is said to be 30% lighter than typical carbon fibre, while its chequered weave 'distributes break-up modes without sharp response peaks'.

LEFT IN SUSPENSE

Sat above the woofer, and isolated internally by cross-bracing, is Perlisten's proprietary DPC (Directivity Pattern Control) array. As with the S7t floorstander, this features a single 28mm beryllium dome tweeter sandwiched by a pair of 28mm Textreme TPCD midrange units, the trio positioned within an acoustical lens waveguide. The form of this moulded glass fibre dish, plus the size and position of the drivers themselves,

has been computer-modelled to optimise the horizontal and vertical dispersion of the DPC array.

The S4b, as well as other models in the Signature S Series (the S7t tower, plus the S5m monitor, S7c centre and S4s surround) brandishes THX Dominus certification. This is of more appeal to those assembling the AV set-up to which the centre and surround speakers are destined, but for stereophiles brings

RIGHT: Mounted into Perlisten's CNC-machined HDF baffle is its 'DPC array' comprising a 28mm beryllium tweeter and upper/lower 28mm TPCD (thin-ply carbon diaphragm) domes

the expectation of a loudspeaker capable of delivering a high output with low distortion. Of potential confusion is that the THX Dominus specification demands a measured 92dB sensitivity, while this bookshelf offers – says Perlisten – an 85.4dB figure [see PM's Lab Report, p59]. Yet this is not a misprint. As Perlisten CEO Dan Roemer explains, THX's 92dB figure is only for the front left/right channels in a surround sound installation.



While the S7t model features internal Helmholtz resonators that can be shorted or left open, therefore allowing the speaker to be used in either reflex or sealed mode, this model is a closed 'acoustic suspension' design. This accounts in part for that low sensitivity, which, combined with a quoted 40hm nominal impedance, suggests it's not a loudspeaker that will leap into action at the first sign of a tube amp.

HONEST TRUTH

The S4b's frequency response specifications benefit from inspection too, as Perlisten's bass extension figure of 36Hz is quoted for –10dB (not –6dB). According to the company's white paper, and PM's own measurements [again, see Lab Report, p59], there's no cliff-edge here, with a gentle low-order roll-off toward that 36Hz rating. As an aside, the company's specs for response, sensitivity and impedance are all refreshingly accurate and honest.



ZERO TO HERO

Considering the sheer number of manufacturers doing battle in the loudspeaker market, it's arguable that the last thing hi-fi enthusiasts need is another one. Yet Perlisten Audio is enjoying a confident debut, launching products that reveal extensive loudspeaker design knowledge, with – judging by its Signature S Series – the performance to match. The company was founded in 2016 by acoustical engineer Daniel Roemer and former M&K Sound president Lars Johansen. There followed a lengthy period of R&D that included bespoke driver development and the creation of the DPC (Directivity Pattern Control) array that graces all of its loudspeakers. Full production began in 2020, and distribution the following year, of a range (including subwoofers) covering both hi-fi and AV markets – rather than 'dipping a toe' with a pared-down lineup. Next to arrive will be Perlisten's more affordable R Series, which uses trickle-down technology from the S series (including the DPC array) plus its own custom driver designs, and again features floorstander, standmount and 'monitor' options.

Elsewhere in the product sheet, Perlisten gives the S4b its own personality: 'I am the overperforming little guy who will demand your respect'. That's cute, but what the literature doesn't suggest is where exactly you should set up this little guy.

The wall-mounting fixings imply a speaker that's happy with its back to the wall, using boundary reinforcement to add some bass heft. And if you are to install on speaker stands, as I did, positioning them close to wall is a good idea. I soon settled on around 20cm, and with a toe-in toward the seating position.

GO LOUD!

The S4b isn't the most user-friendly of smallform speakers because, as expected, those sensitivity and impedance figures make this something of a tough drive.

LEFT: Behind one of two magnetically-attached grilles, the custom 180mm 'acoustic suspension' TPCD bass/mid driver is loaded into a sealed-box

A negative for owners of low-power amplifiers, sure, but I'd credit that sealed construction for this loudspeaker's wonderfully smooth bass handling, and if Perlisten's driver choice and crossover design is essential in creating the S4b's even-handed, detailed presentation, then I can't bemoan too much its hungry-for-power attitude. Long story short: this is a high-performance speaker that warrants a high-performance amplifier, particularly if you intend to listen loud.

This bit of housekeeping over with, I can move onto the good news – Perlisten's bookshelf/standmount really is a chip off the not-so-old block. Like its S7t sibling, it excels when it comes to mid and high details, resolving the most subtle of musical moments and nailing the feel and tone of instruments. The sense of immaculate resolution coming from the DPC array then bleeds into its imaging prowess. Centre-field vocals hang in the air, while the soundstage ventures wide with retained focus. It's a revealing listen.

Metallica's 'Halo On Fire', from the album *Hardwired... To Self-Destruct* [Blackened 00602557156263], did show a shortfall in that feeling of dynamic low-end attack we found with the S7t, even with a Primare A35.8 power amp [*HFN* May '22], in bridged mode, backing it up. But this is an unfair comparison, and the S4b still gets to the meat of the composition, presenting the rhythm section with a deep, rich, resonant tone and the crunchier midrange guitar riffs with no hint of brittleness.

Furthermore, while it doesn't sound as big and dramatic as Perlisten's larger model, it had me in a state of heightened awareness. The S4b pairing extracted information from this mix that I often don't notice – from the way James Hetfield's vocal appears to emanate from the back of a stage, to the juxtaposition of the widely



LEFT: The crossover is split between bass and DPC array – hence the pair of 4mm terminals – while the threaded inserts support Perlisten’s swivelling wall bracket system

Records VVR1006952], I was impressed by how fluidly the basslines were reproduced, and how much depth and output Perlisten’s single 180mm driver could deliver.

If you’re partial to electronic music where effects are thrown across the soundstage, then you’ll appreciate this speaker pairing’s ability to lock in step for such acrobatics. With ‘100’ by Jon Hopkins [Contact Note; Linn Records; 96kHz/24-bit] it was a

spaced twin guitars and centralised drum kit. It all sounded wonderfully three-dimensional.

There’s clarity and nuance here by the bucketload, but the speaker doesn’t adopt a softly-softly approach. Leading edges are in full force, meaning Hans Theessink and Terry Evans’ ‘Gotta Keep Moving’ [Visions; Blue Groove CD] showed off the musicians’ playing prowess. The twang of plucked strings and the slaps of palms on acoustic guitars made it easy to visualise the duo in the studio, as did the inflections of their baritone vocals. And for the speaker’s ability to convey the snap of percussion, look no further than Rush’s ‘Tom Sawyer’ [Moving Pictures; Mercury 96kHz/24-bit], which featured clean, precise hi-hats and a snare drum sound to die for.

VOCAL TRIUMPH

So, like the S7t, I was faced with a loudspeaker that from the outside looked potentially pugnacious, but revealed a delicate, naturalistic and audiophile bent. It’s sound always seemed to be perfectly proportioned, that superlative mid/high presence not overtly prominent and basslines finding no errant cabinet colouration. Letting my hair down (what’s left of it) with ‘King Of The Beats’ and ‘Stalker’ from the eponymous album by drum ‘n’ bass producer/DJ Aphrodite [V2

delight to follow the synthesiser effects as they moved smoothly between the speakers.

Not that such production techniques are new-fangled, as proven by the woozy breakdown of Led Zeppelin’s ‘Whole Lotta Love’ [Led Zeppelin II; Atlantic; 96kHz/24-bit]. Coming after two minutes of hard-hitting blues rock framing Robert Plant’s triumphant vocals, this near-psychedelic section felt like it was from another planet. Perlisten’s small(ish) cabinets concocted a wall of sound bigger than you might expect, casting Plant’s wails high and wide. Then Jimmy Page let rip on his Les Paul and I was grinning from ear to ear. ☺

HI-FI NEWS VERDICT

Perlisten Audio’s precision-made standmount manages to play like a miniature version of its floorstanding brethren, offering the same transparent, balanced sound book-ended by sweet highs and smooth bass. Beefy amplification is a necessity to get the S4b firing on all cylinders, but find the right partner and it’ll sing. Superb build, purposeful styling and sumptuous sonics make for a winning combination.

Sound Quality: 87%

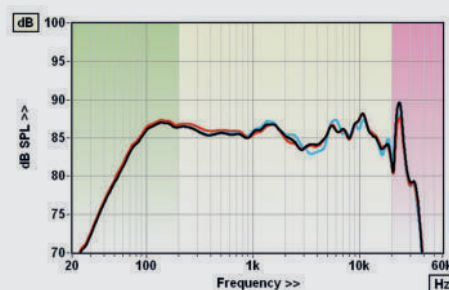


LAB REPORT

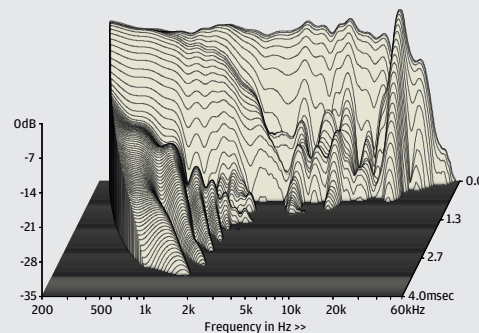
PERLISTEN S4B

Measured on the centre axis of the DPC array the S4b’s forward response is marginally downtilted in trend before peaking at 10kHz and then dipping steeply (–7dB/20.6kHz) just prior to the beryllium dome’s primary resonance at a relatively low 23.4kHz [see Graph 1]. The undulations through mid, presence and treble – also seen as mild driver resonances [Graph 2] – yield response errors of ±3.1dB and ±3.2dB, respectively [the dip at 3–5kHz is slightly exaggerated by the perforated metal grilles; blue trace], while pair matching is excellent at 0.6dB (200Hz–20kHz). Perlisten’s modest 85.4dB sensitivity rating for the S4b is precisely met in practice at 85.7dB (1kHz) and 85.4dB (500Hz–8kHz), figures that are not unreasonable for this modestly-proportioned, sealed enclosure even though THD necessarily increases at HF (~3%/10kHz re. 90dB SPL).

Amplifier loading is still tough given the limited sensitivity, with Perlisten’s 3.2ohm minimum rating met, again, on test at 155Hz and its impedance modulus remaining sub-4ohm from 100Hz–525Hz. The toughest reactive load occurs in the bass at 106Hz where the EPDR drops to 1.24ohm, and treble where the EPDR is 1.66ohm/20kHz. But what of bass heft? While the alignment sees a bass peak of 28ohm/49Hz, the output of the 180mm Textreme TPCD woofer peaks at 140Hz with a 48–830Hz bandwidth (–6dB). The ‘acoustic suspension’ loading offers a gentle (between 1st/2nd-order) bass roll-off [green shaded area, Graph 1] and a diffraction-corrected extension of 55Hz (–6dB re. 200Hz), although boundary reinforcement will produce deeper bass in-room. PM



ABOVE: Response inc. nearfield driver [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; with grilles, blue



ABOVE: Cabinet resonances are well damped, leaving minor driver modes at 1-3kHz and 10-23kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	85.7dB / 85.4dB / 83.4dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	3.2ohm @ 155Hz 28ohm @ 49Hz
Impedance phase: minimum & maximum (20Hz–20kHz)	–66° @ 67Hz +41° @ 985Hz
Pair matching/Resp. error (200Hz–20kHz)	0.6dB/ ±3.1dB/±3.2dB
LF/HF extension (–6dB ref 200Hz/10kHz)	55Hz / 20.2kHz/19.9kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.2% / 0.5% / 3.1%
Dimensions (HWD) / Weight (each)	420x240x310mm / 11kg