VIVID AUDIO KAYA 25

They say that beauty is in the eye of the beholder, and although I have admired the sound quality of Vivid Audio's speakers for a long time now, I can't say that I have been overly-enamoured of the curvy shapes of the cabinets. Until now. The Vivid Audio Kaya 25s are simply drop-dead gorgeous. I loved their look from the moment I unpacked them, and the love affair continues. I wondered about my sudden change of heart until I saw photos of the Kaya K90, Kaya K45 and Kaya S15 and realised that the shape of the Kaya 45 is completely different from these models. Whereas those models are all rather bulbous at the bottom—and from side-on the Kaya K90 looks decidedly pregnant—the Kaya 25 is very slender at the bottom, with its cabinet size increasing with height. It also has, to my mind, at least, the most aesthetically-pleasing lines of all Vivid Audio's models.

Despite its size, the Vivid Audio Kaya 25 is a two-driver, two-way system… there are no more drivers hidden away inside the cabinet, nor on the sides, as on some other of Vivid Audio's loudspeakers. I was intrigued that Vivid Audio specifies the diameter of the bass/midrange driver as 125mm, (even the part number of the driver—C125D—references it) when it looked to be much larger. It turned out I'd missed the fine print in the specification, because that dimension refers to the diameter only of the aluminium cone itself. If you add in the roll surround and the chassis—which is what nearly every other speaker manufacturer does—the diameter of the driver increases to around 170mm.

As with all drivers, however, the critical 'need to know' dimension is the Thiele/Small diameter, because this essentially tells us how much air the cone can move, which is the crucial factor in low-frequency performance. (Cone excursion is another factor, but it's rarely revealed in manufacturer's specifications.) The T/S diameter of the Kaya 25's bass midrange driver is 135mm, which gives a cone area (Sd) of 143cm². The roll surround is made of rubber, which is—at least in Australia—a far more durable material than the oft-used foams, which tend to disintegrate due to the high levels of ultra-violet radiation in the sunlight in Australia. (In Darwin, the World Health Organisation reports year-round UV indices mostly above 11 and as high as 13—levels which are classified as 'Extreme'—where as in Paris, France, for example, they're mostly below 4 and never get higher than 7… UV index levels which are classified as only 'moderate to high'.)

However, lots of manufacturers use alloy cones and rubber surrounds. What makes Vivid Audio's C125D so unusual is its bulbous dust cap, which is shaped like no other driver dust cap I've ever seen. The 'bulb' apparently pushes the cone break-up frequency out-of-band by increasing the frequency range over which the cone (and dustcap) move pistonically. Vivid Audio claims most manufacturers simply either use a dustcap to keep dust away from the voice coil or as a way of boosting high frequency output after the main cone has entered into its break-up zone.

Since I've mentioned the voice coil, I should tell you a little more about it: The one in the C125D is 50mm in diameter and the rare-earth radial magnet that drives it is positioned immediately adjacent to it (which wasn't the case with the earlier C125 driver that was used in the V1.5). This has, according to Vivid Audio, enabled longer linear travel and lowered inductance which have in turn improved the driver's high-frequency response, which is very handy when, as in this design, it has to deliver frequencies all the way up to the 3kHz, 24dB/octave crossover frequency.

As for the tweeter, that's Vivid Audio's famous D26… a 26mm diameter alloy dome radiator that's rear-loaded by a tapered tube. This tweeter is used on all Vivid Audio's models. It has a catenary—rather than hemispherical—shaped dome mounted atop an EW aluminium voice coil that is driven by eight radially polarised neodymium iron boron magnets.

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According to Vivid Audio, the magnetic flux density in the voice-coil gap that results is so powerful (2.4 Tesla) that it could not use ordinary ferrofluid and had to commission Ferrotec Corp (USA) to formulate a special one specifically for the D26.

Pressure from the rear of the dome is dissipated inside a fibre-damped, exponentially tapered tube which, according to Laurence Dickie, who designed it: '*has an acoustic performance identical to that of an ideal enclosure, being completely free of resonance or reflection*.' Cognisant of the fact that most metal dome tweeters have a fairly low resonant frequency, Vivid Audio says it uses a special fabrication technique to manufacture the dome which it claims pushes the resonant frequency to '*above 44kHz*'.

Catenary domes are not exactly new. They've been used by engineers and architects since the 14th century—and possibly earlier—and if you've ever visited one of Antoni Gaudi's buildings you will have walked under one or more of his catenary arches, most famously in Casa Batlló, in Barcelona. What's the advantage over a hemispherical dome? Well, according to the textbooks, it's that: '*for an arch of uniform density and thickness, supporting only its own weight, the catenary is the ideal curve*.'

The bass reflex port on the rear panel is relatively small, being around 100mm long and 40mm in diameter. Both ingress and egress are rounded, to reduce turbulence and the possibility of chuffing. But the port isn't the only form of bass loading provided, because Laurence Dickie has also incorporated an exponential absorber inside the Kaya 25, which he says: '*takes the performance of K25 into the realms of the Giya range rendering it free of the top to bottom resonances which compromise ordinary speaker designs*.'

You can't bi-wire the Kaya 25 because there is only a single set of speaker terminals… and when you go to wire up the speakers, you'll quickly discover why: There's no room for a second set. The gold-plated, multi-way speaker terminals are mounted underneath the speaker, at the rear of the integral loudspeaker stand. Access and wiring is very easy if your speaker cables are terminated by banana plugs, but if you use any other type of connector, it will be bit of a fiddle to insert the bare wires… or pins… or whatever, and more of a fiddle to tighten the nuts down on the terminal threads, because there's not a whole lot of space. Indeed I dare say that you'll have to lay the speakers on their sides in order to get a spanner onto the nuts. This isn't a problem… just make sure you have some soft pillows handy. And you'll only have to do it the once, so it's not a big issue. However if you use particularly fat or non-bendable cables, such as the excellent ones sold by Redgum, you'll need to use special 'sidewinder' cable fittings. But I have another another warning: do not over-tighten the nuts! Just 'nip' them snug. If you turn too hard, you may run the risk of loosening the entire terminal in its alloy housing.

The Kaya 25, as with all the other models in the Kaya range—and also the Giya—use enclosures made from glass-reinforced sandwich composites made using a vacuum infusion process. This isn't simply done as a way of generating attractive-shapes, the particular construction method also makes the enclosures very stiff when compared to wood and, according to Vivid Audio, this means that: '*structural vibrational modes are pushed up in frequency out of harm's way*.' The construction method also means that the outer layer can be tinted almost any colour you want, which is very handy if you want the speakers to match the décor of your room. However, after you've checked the cost of ordering one of Vivid Audio's 'bespoke' colour options, I suspect you'll opt for one of the company's standard colours: Piano Black, Pearl, and Oyster Matte. Whichever colour you choose, I suspect you will have one issue with it, one which was kindly pointed out to me by my better half, and it's that the 'glassy' finish does tend to show the dust a bit but, as I pointed out to her, this is nothing a few seconds with a damp cloth can't fix. (Yes, you're right… she then handed me a damp cloth along with a few choice words!)

Despite the cabinet being 1.16 metres high and relatively small (it has an internal volume of approximately 25 litres), it weighs a substantial 24kg. I suspect that much of this weight is mass that's been added very low down in the cabinet to ensure stability because the larger Kaya 90, for example, has something of a reputation for being a little 'tippy', such that if you give a Kaya 90 a hard push from either side, it can fall over. Because of this, I spent some time seeing if I could topple the Kaya 25 and found that it was actually pretty hard to do… indeed I'd venture that the cabinet is actually more stable than a similarly-sized conventionally-shaped cabinet. According to Vivid Audio, it has a 'tip angle' of above 11°.

THE B&W CONNECTION

When you read Vivid Audio's brochures and delve more deeply into the technologies it uses in its loudspeakers, you might start to experience a certain sense of *déjà vu*… the feeling that you've already heard about Vivid Audio's technologies. If so, you should trust your sixth sense, because Vivid Audio was founded in 2004 by two men who spent a very long time at B&W and were instrumental in that company's success: Robert Trunz and Laurence Dickie.

Trunz was for many years not only B&W's managing director, but also its majority shareholder. Laurence Dickie was a research and development engineer at B&W for thirteen years during which time he developed for B&W not only the 'Matrix' cabinet bracing technology the company still uses to this day, but also its most famous flagship design, the Nautilus… which is also still in production. Though Vivid Audio was originally founded in South Africa, and all its production facilities are located in New Germany, KwaZulu-Natal, South Africa, its design, technical and administration facilities are now situated somewhat further north… in West Sussex, England.

IN USE AND LISTENING SESSIONS

The Kaya 25 is not only the smallest speaker in the Kaya range, it's also the only two-way, with the larger models having side-firing bass drivers. As such, Vivid Audio recommends that the Kaya 25 is best-suited to 'smaller' rooms… without actually defining the volume of the room they think it would best energise. The issue of course, is that sound is created by air movement and, for loudspeakers at least, air movement is created by the drivers, so once you're moving a certain amount of air, if you want to move more of it you need more or larger drivers… or both!

The distance a cone can travel (called 'throw') is also a factor, but it's one that's largely dictated by the diameter of the driver (though there was one famous exception, the 'edgeless' driver once designed and built by Fostex which sadly, is no longer available… at least is not to the best of my knowledge.)

It's for the reasons stated in the previous paragraphs that I decided to audition the Kaya 25s in a different room than I usually use, one that's around 5 metres long, 3.6 metres wide and has a 2.6 metre ceiling. I was pretty sure the Kaya 25s would 'energise' this room satisfactorily, but I was also fairly certain that I wouldn't be hearing too much bass, despite the fact that I'd maximised my chances by putting the speakers fairly close to the wall and a little closer to the corners than I would usually.

It turned out that I was correct in my first assumption, but incorrect about the second. To my amazement, despite their enclosure size, and the relatively small diameter of the bass/midrange driver, the Kaya 25s were not only able to fully energise the room, but were also able to deliver bass that went low enough—and was sufficiently loud at those low frequencies—to make me perfectly happy with pretty much all the music I listen to on a regular basis. OK, so maybe kick drums were a tad back in the mix, ditto the E (lowest-pitched) string on electric bass guitar, but these low notes were delivered with such purity of tone that this latter quality more than made up for its lack. My go-to track to demonstrate this characteristic to visitors who asked about the new speakers (which, by the way, was absolutely everyone who visited, including my neighbour's youngest, who wanted to know if they were 'wobots') was Van Morrison's classic *Moondance*. First, the walking bass will immediately show the Kaya 25s dig deep enough, while the stabbed piano chords, followed by the tinkling trills at around 30 secs in will show the purity of the sound.

And if that isn't enough, there's the instantly recognisable sound of the voice of 'the man' when he comes in, not to mention the contrasting sound of the flute, first shrill in its higher octaves, and then breathy down low at the bottom of its register. I find that spoken voice is a good tester of midrange accuracy, and my favourite in this recorded genre is Dylan Thomas' play for voices, 'Under Milkwood', narrated by Richard Burton. There's Burton's voice, of course, fabulous as ever, but you can hear his slight sibilances beautifully through the Kaya 25s, plus the slight variances in tone caused by the different microphone positions. The clarity and precision of the Vivid Audios Kaya 25s is such that you instantly recognise each of the characters before they've even finished their first word. And what a fabulous cast of characters it is, with Captain Cat, Myfanwy Price, Mrs Dai Bread Two, Mog Edwards, and Rosie Probert *et al*. If you'd like actual singing, try the EMI version (CDS 791232-2) that has Bonnie Tyler (Polly Garter), Mary Hopkin (Rosie Probert), Tom Jones (Mr Waldo) and Geraint Evans (Rev Eli Jenkins). Mark Knopfler even guests on guitar (I don't know how they managed to wrangle that). Unfortunately this version doesn't have Richard Burton as 'First Voice' but Anthony Hopkins does a fine job.

Piano, of course, is also very revealing of midrange, and one of my favourites for this is a disc titled 'Chopin Mazurkas', recorded by Vladimir Ashkenazy (Decca 417 584-2).

I love this album first because I know the music so intimately, having played many of the Mazurkas as a youth (not nearly so well, of course!), and second because Ashkenazy plays them so well, obviously absolutely lavishing them with love and attention, but thirdly because the Decca recording is so clear and revealing.

Listening to it through the Vivid Audio Kaya 25s I could visualise the fingering, hear the tiniest nuances of intonation plus appreciate the richness and depth of the piano sound.

Listen particularly for the 'openness' of the sound, which you rarely hear from any dynamic loudspeaker…

Listen particularly for the 'openness' of the sound, which you rarely hear from any dynamic loudspeaker… you're hearing the lack of distortion for which Vivid Audio's unique hand-made drivers are justifiably famous. In this regard, their sound quality is almost electrostatic in nature.

If I were going to be picky, the only tiny chink I could find in the Kaya 25's midrange sound was that the imaging wasn't rock-solid right across the band, so that at some frequencies it was perfectly focused while at others while it wasn't actually out of focus… just not quite perfect. Despite this, the overall soundstaging remained excellent, which I realise is a conundrum, but there you have it.

I had been forewarned that Vivid Audio's D26 tweeter only really sounds its best if the angle between it and the listeners ears is no more than 15 degrees (either above or below) so I'd followed this advice to the letter, but what no-one told me is that they also have to be toed into either face the listening position, or cross just slightly in front of it. This may be simply a characteristic of the way it's used and/or positioned on the Kaya 25's baffle, so it may not hold true for other Vivid Audio models using the same tweeter, but that was my experience with the Kaya 25s. With the sound thus optimised, I found the high-frequency sound to be gloriously smooth and extended as well as extraordinarily detailed. Indeed, try as I might, I couldn't really fault it.

CONCLUSION

I have a confession to make. Although, as I hope I've made clear throughout this review, room size, speaker location in that room and positioning with regards to tweeter height and toe-in are significant factors in the Kaya 25s' performance (as indeed they would be with any loudspeaker), another factor in the Kaya 25s' performance is the use of spikes, because they really do sound better when used with the spikes Vivid Audio supplies. Because of this, I installed and used those spikes for all my listening sessions.

So what's my confession? It's that I so much preferred the look of the Kaya 25s without the spikes that once I had finished my 'professional' listening and was instead listening simply for the pleasure of listening to them, I removed the spikes. Even more sacrilegious, I decided that the difference in sound was so small that if I owned a pair of Kaya 25s—something I'd be absolutely thrilled to be able to do—I still wouldn't use them, even for serious listening. I also have to confess that if I owned a pair I would also toy around with the idea of adding a subwoofer… placed somewhere out of sight of course.

However, subwoofer or no, I would be thrilled to own a pair of Kaya 25s… and not just because of their sound quality, but also simply because of the way they look. Speaking of which, I just have to say it again: they're drop-dead gorgeous.

Angus Bradley

CONTACT DETAILS

Brand: Vivid Audio
Model: Kaya 25
RRP: $13,650
Warranty: Five Years
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T: (07) 5580 3300
E: info@avation.com.au
W: www.avation.com.au

SPECIFICATIONS

Configuration: 2-way/2-driver system
Cabinet material: Glass reinforced Soric-cored sandwich composite
Cabinet Colours: Piano, Pearl, Oyster Matte (bespoke cabinet colour options available on request)
HF Driver: D26 - 26mm tapered tube loaded alloy dome
LF Driver: C125D - 1 x 125mm alloy cone
Bass Loading: Exponentially tapered tube enhanced bass reflex
Sensitivity: 85dBSPL (2.83VRMS/1m)
Nominal Impedance: 8Ω
Minimum Impedance: 7.5Ω
Frequency Response: 40Hz–25kHz (–6dB)
First D26 break-up mode: 44kHz
Harmonic Distortion: <0.5% (2nd and 3rd harmonics)
Crossover Frequency: 3.0kHz
Dimensions (HWD): 1160×x263×340mm
Weight: 24kg
Price: $13,650 (RRP)

- Drop-dead gorgeous
- Sonic clarity

- Speaker terminals
- Shell shows dust

Readers interested in a full technical appraisal of the performance of the Vivid Audio Kaya 25 Loudspeakers should continue on and read the LABORATORY REPORT published on the following pages. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

LABORATORY TEST REPORT

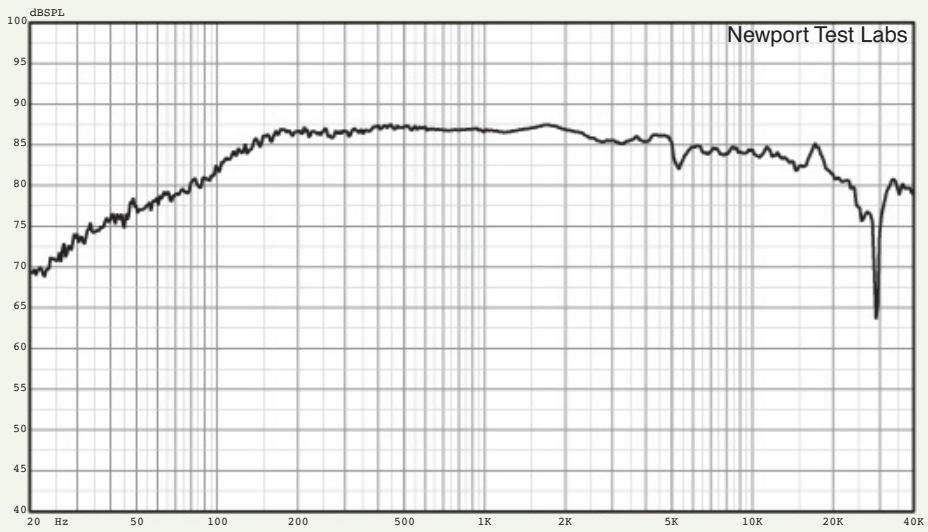
Newport Test Labs ran its usual suite of tests in its acoustics laboratory, the results of which are shown in the six graphs accompanying this test report. Graph 1 is the 'overall' response, where the low-frequency in-room response has been spliced to the high-frequency anechoic response to give an overall snapshot of the Vivid Audio Kaya 25's performance. You can see pretty much immediately that the response extends from 80Hz to 24kHz ±4dB or, if you want the classic '±3dB' window, 90Hz to 20kHz ±3dB.

This is very good performance, but you can see that the Kaya 25 reserves its flattest and most linear performance for the all-important midrange, where the frequency response extends from 125Hz to 5kHz ±1.2dB! And, as you can see from the graph, almost all that deviation is the slight roll-off from 2kHz to 5kHz. Between 180Hz and 2kHz the response almost tracks the 87.5dB graph calibration line.

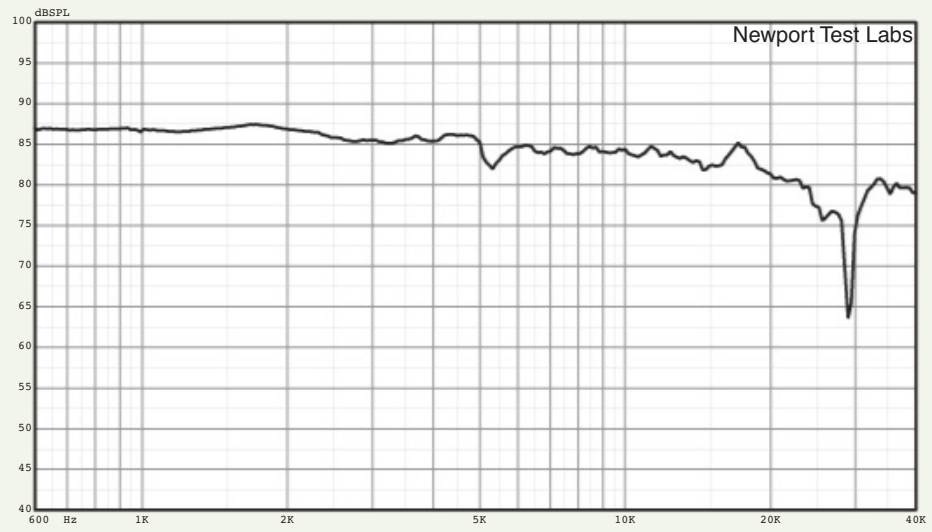
The very small dip in the response at 5.4kHz is so narrow and so high in frequency that it would not be audible with program material, and you're certainly not going to hear that higher-Q and deeper dip in response (likely a resonance) right up at 29kHz. What you will most likely hear is the fact that overall spectral balance of the Kaya 25 has the overall high-frequency response rolling off (albeit very gradually) from 2kHz where it shelves at 3kHz out to around 13kHz, then continues to roll off as the frequencies get higher. At low frequencies, you can see the Kaya 25's response starts rolling off at around 150Hz, but does so very gradually, so that the –6dB point is at a very creditable 48Hz.

Graph 2 shows the high-frequency anechoic part of the speaker's response in greater detail by limiting the left-most part of the graph to 600Hz, which essentially 'stretches' the response, so all the same comments I made about Graph 1 apply to Graph 2 as well.

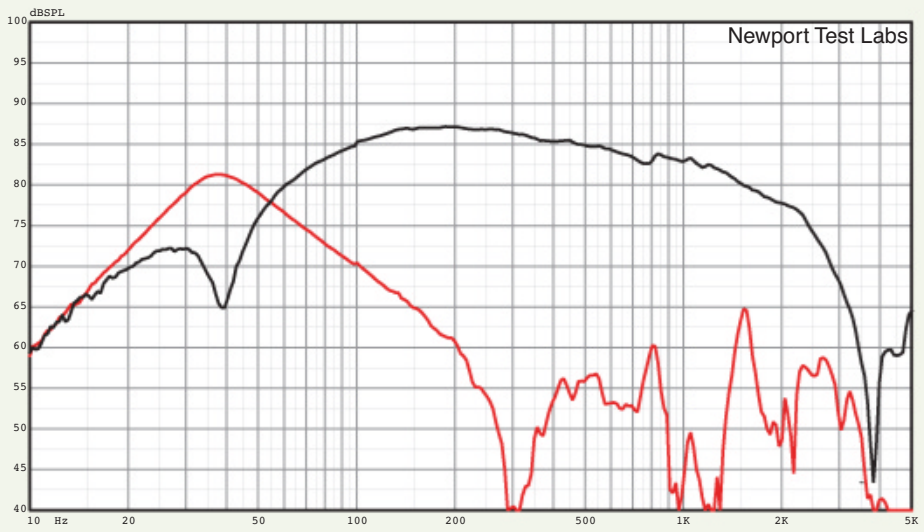
The low-frequency response of the Kaya 25 is shown in Graph 3. *Newport Test Labs* used the near-field measurement technique pioneered by D.B. Keele Jnr to do this, and it essentially shows how the speaker would perform in an anechoic chamber. The technique has many limitations, not the least of which is that you can measure only a single driver (or, in the case of the port, acoustic source) at a time. Basically, it shows that the frequency response of the bass/midrange driver does start rolling off at around 140Hz and that the driver would produce very little output below 48Hz



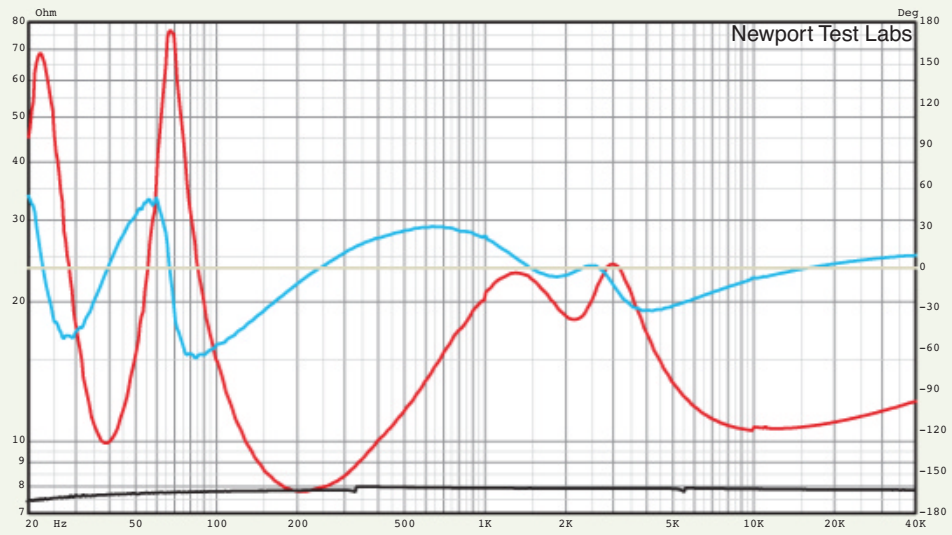
Graph 1. Frequency response. Trace below 1kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus with capture unsmoothed. This has been manually spliced (at 600Hz) to the anechoic high-frequency response, an expanded view of which is shown in Graph 2.



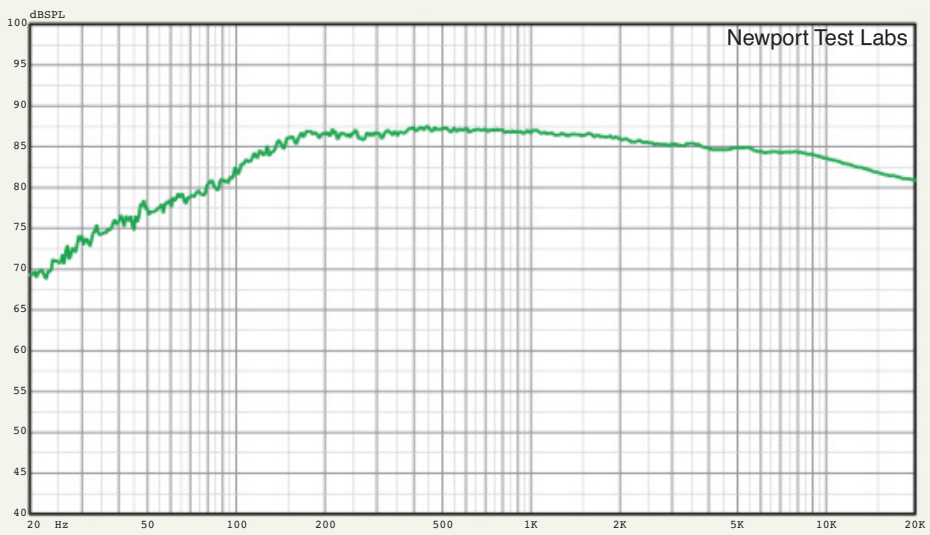
Graph 2. Anechoic high-frequency response, expanded view. Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 800Hz.



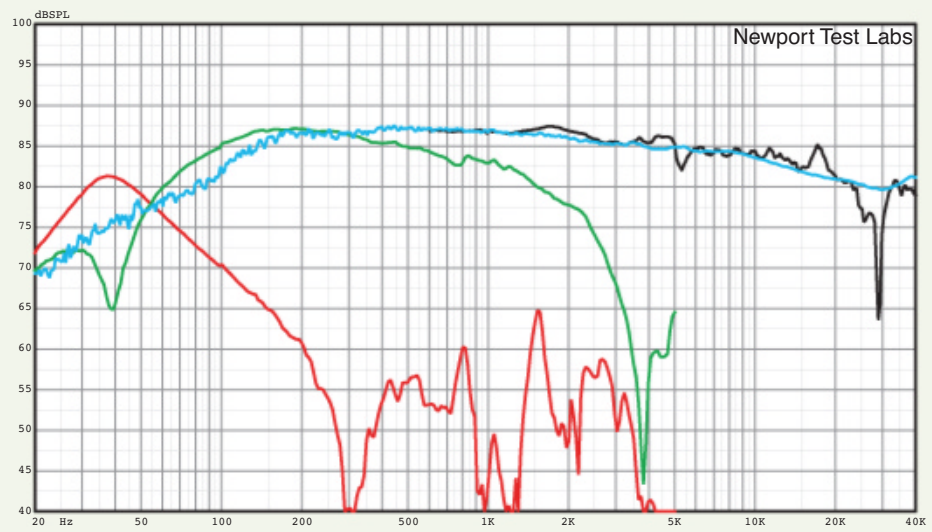
Graph 3. Low frequency response of rear-firing bass reflex port (red trace) and bass/midrange driver (black trace). Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas.



Graph 4. Impedance modulus (red trace) and phase (blue trace). [Black trace under is a reference precision calibration 8-ohm resistor]



Graph 5. Averaged room frequency response using pink noise test stimulus with capture unsmoothed. Trace is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter.



Graph 6. Composite response plot. Red trace is output of bass reflex port. Green trace is anechoic response of bass/midrange driver. Black trace is the anechoic response above 600Hz. Light blue trace is averaged in-room pink noise response (from Graph 5).

(the bottom of the dip in the driver's response). However, some low-frequency reinforcement is provided by the bass reflex port, whose output peaks at 48Hz and is useful over the range from around 24Hz to 70Hz. The port's roll-off is generally very clean, though there is some acoustic breakthrough, primarily at 800Hz and 1.5kHz.

Newport Test Labs measured the sensitivity of the Vivid Audio Kaya 25 at one metre as being 87dBSPL for 2.83Veq, which is about the average for all high-quality loudspeakers across bookshelf and floor-standing models, so I read that result and wasn't really going to comment on it until I found out that Vivid Audio's specification says it should have been 85dBSPL, which means *Newport Test Labs* measured SPL a full 2dB *higher* than Vivid Audio's specification. This added efficiency is very welcome: consider it a bonus.

The impedance modulus measured by *Newport Test Labs* was certainly a surprise, because the trace on Graph 4 shows that the impedance is almost entirely higher than 8Ω, dipping below it (and then only down to 7.8Ω) only at 210Hz. This result also had me reaching for Vivid Audio's specifications again and, yes, they specify a 'nominal' 8Ω impedance (with a minimum of 7.5Ω) for the Kaya 25.

This result means that the driving amplifier will not be required to deliver much in the way of current, but it will be required to deliver fairly high voltages, so I'd be going for the highest power output you can afford to achieve the best, most dynamic sound. Somewhere in the 100-watt per channel region would seem to be about right to me. That rising impedance above 10kHz will mean that the Vivid Audio Kaya 25 is particularly well-suited to being driven by Class-D designs of all persuasions, almost all of which will be able to deliver very high power levels.

Overall, the Vivid Audio Kaya 25 returned excellent measured performance. *S.H.*