

VERITY AUDIO LEONORE LOUDSPEAKERS



For a relatively small population—around about the 35 million mark and not dissimilar from that of Australia—Canada has an almost disproportionate number of high-end audio manufacturers. Big names too; Paradigm, Bryston, Classé and Moon Audio pop straight to mind. But as much as Canadian electronics companies have reached world recognition and market success, it is the country's speaker manufacturers, from entry-level to the high-end, that seem to proliferate. Some of these companies take advantage of the country's world-leading National Research Council of Canada's speaker testing facilities, while others use their own facilities.

Quebec's Verity Audio is a boutique maker of high-end speakers that has garnered international acclaim for its products' great sound, superb construction and attractive design. These elements are clearly exhibited in the subject of this review, the Leonore model from Verity Audio's top-tier range.

AURAL REALITY

Verity Audio's President Bruno Bouchard and Vice President Julien Pelchat both have solid backgrounds in audio and, going by their testimonies on the company's website, are avid and passionate music-lovers.

'Hi-fi has helped me gain a better understanding of just how much music can enrich, humanise, and inspire in the noblest manner. Verity Audio has today the possibility of bringing people in touch with the highest moments of art.' writes Bouchard, while Pelchat seems equally ardent, *'Giving the name 'Parsifal' to Verity's first product was a testament to Verity's design philosophy. These virtues of purity and simplicity are directly linked to the myth of the 'Holy Grail' and to Parsifal.'*

Whether it's an homage to the heroic wife in Beethoven's opera *Fidelio* or just a reference to the name's literal meaning

(*'purest shining light'*), there's little doubt that the Leonore is a gorgeous statement with a great potential to truly sing.

For starters, there are the superb drivers. All are custom-designed and manufactured (and looking to me like a possible mix of highly-regarded SB Acoustics and Audio Technology drivers) with the tweeter being a 25mm Neo Ring fabric dome while the all-important midrange driver is a 100mm mineral-doped polypropylene cone.

Two edge-coated reed-reinforced paper-coned 165mm diameter bass drivers are unusually placed in a backwards-firing configuration on the angled rear baffle. This arrangement will, of course, demand very careful placement in terms of bass driver and rear wall distance relationships and also regarding acoustic interactions.

Whilst on specifications, Verity Audio quotes a bandwidth of 35Hz to 50kHz $\pm 3\text{dB}$, a nominal impedance of 8Ω (minimum 6Ω) and a sensitivity of 93dB/1watt/1m. These last two specifications make for a very valve-friendly design, although nothing is a given when it comes to audio, so auditioning with your amp *'du jour'* is recommended.

Although the Leonore may appear to be a two box set-up—with the tweeter and midrange in a separate enclosure stacked atop a larger bass cabinet—that would be both correct and erroneous. The top enclosure is actually independent but, in an unusual arrangement, it is solidly coupled to the lower cabinet. A superficial visual inspection revealed a central steel bolt coupling the two enclosures while a set of four visco-elastic rubber feet simultaneously provide some vibratory relief. The thick slab that separates the two cabinets provides a solid platform (pun unintended) for the upper enclosure while serving to isolate it from the excursive violence of the twin bass drivers. A luxurious black velour covers the tweeter/mid cabinet's baffle and, aside from looking gorgeous, it plays an important role in diffraction and dispersion characteristics which will correlate with potential soundstage and imaging benefits. The overall design measures 1065mm high by 247mm wide by 443mm deep. Each cabinet weighs in at a solid 38kg.

The highly inert enclosure (Verity's 'proprietary' asymmetrical bracing system) of the review sample came veneered in a truly stunning sycamore with high-gloss Italian polyester lacquer expertly applied to it. As further evidence of the attention to detail, the veneers were perfectly book-matched on all the speakers' facets and the overall fit and finish is truly superb. Excellent quality custom binding posts and solid brass cones with spike receptacles finish off one very classy package. Piano gloss black is the standard finish while a number of wood and paint gloss finishes are available.

LOCATION, LOCATION

The orientation of the bass drivers makes for some fun and games when positioning the Leonores. Be prepared for some in-room experimentation and 'speaker walking' high jinks if you're to reap the full bass quality and soundstaging potential these speakers are capable of. However, shuffling them about won't be too difficult a task—happily



the Leonores aren't excessively heavy and the shape allows reasonably easy handling.

Whilst living with these extraordinary speakers for a number of weeks I grew to appreciate their refinement and deft delicacy. These aren't Death Metal head-bangers—although they'll still do a reasonable job there—but they are thoroughly skilful all-rounders with all other, gentler, genres.

The live recording of Renaud Garcia-Fons Trio's *Arcoluz* presented a massive soundscape with the Leonores throwing full-bodied images far and wide either side of, and behind, their positions. The Trio's forté is in the dexterity of Garcia-Fons' acoustic bass chops and the twin 6-inchers really walloped it in a tight, deep and detailed style. Some tracks on this CD (I also used AIFF files via BitPerfect on a MacBook) have a lot happening with complex virtuosic instrumentation and the Leonore easily separated and resolved the various strands, be it in the bass or further up the range.

But put on a vocal, be it the deep croakiness of Doug McLeod, the now clichéd (but still enjoyable) Dianna Krall or, more in line with my style, the entrancing Chan Marshall from *Cat Power*, and the Leonores will seductively pull you in. That midrange driver is a real vocals specialist. Diction, intonation, breathing technique, you name it, it all comes across tonally accurately and eerily present in a slightly forward-of-the-plane perspective that places 'bodies in the room'.

The Leonore's tweeter is slightly laid-back, slightly truncating the ultimate 'air', extension, and dynamic expression of cymbals and high frequency content in general. On the flip side, the Leonores will never offend—brightness and harshness are in absentia with these speakers. Be that as it may, the Neo Ring tweeter can present detail in an exquisitely subtle and refined way with restrained detail yet complex with textures and nuances. A case in point would be the exquisite bells and background instruments in Sera Una Noche's *Nublado* where the initial transient snaps, the presence is immediate and the decay trails off into the deep soundscape.

CONCLUSION

Elegant sophistication in form and sound. That's how I'd sum-up Verity Audio's Leonore design. Yes, there are more dynamic and overtly extroverted speakers out there in its price range. And yes, some will provide deeper bass and harder slam. My contention is that few, if any, will bring the level of musicality and refined detail the Leonore can deliver. Audition them well-matched and positioned and the virtues of Leonore may seduce you like she has me.

Edgar Kramer

VERITY AUDIO LEONORE LOUDSPEAKERS

Brand: Verity Audio
Model: Leonore
Category: Floorstanding Loudspeakers
RRP: \$16,000 (Premium finishes extra)
Warranty: Five Years
Distributor: Reference Audio Visual Pty Ltd
Address: P.O. Box 171
Park Orchards
VIC 3114
T: (03) 8813 0137
F: (03) 8813 0133
E: info@referenceav.com.au
W: www.referenceav.com.au

-  Smooth and soothing sound
Excellent vocal range
Exemplary build and finish
-  A tad polite
Need extra care in positioning

LAB REPORT: Turn to page 82
Test results apply to review sample only.

LABORATORY TEST RESULTS

Because of Verity Audio Leonore's unusual design, Newport Test Labs ran many additional tests on the loudspeakers.

The result of one such test is shown in Graph 1. In this graph, the averaged pink noise response below 9.5kHz, derived from Graph 5, has been spiced via post-processing to the gated high-frequency response, an expanded view of which is shown in Graph 2. The 'lift' in the trace between around 50Hz and 150Hz is due to the rear of the speaker being 20cm from a wall. However, even with this lift, you can see the response extends from around 40Hz to 25kHz ± 3 dB (we can safely ignore the dip just above 15kHz).

The Leonore's high-frequency response is shown in greater detail in Graph 2, measured with and without the loudspeaker grille fitted, with the traces as per the graph caption. You can see the effect of the grille on the response is minuscule, so I doubt anyone would be able to hear any difference between the grille being on or off, even in a direct A-B comparison. You can

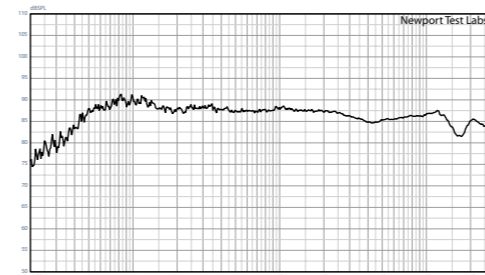
see that there's a broad suck-out between 2.5kHz and 12.5kHz, as well as the dip at 15kHz noted previously. Although the broad suck-out might be audible, as it's over two octaves, those two octaves are almost entirely above the highest 'E' on the piano keyboard, so any effect would be on musical harmonics rather than on the fundamental notes. As for that dip at 15kHz, its bandwidth is so small that its effect would certainly not be audible, notwithstanding the fact that most people aged over 30 can rarely hear sounds above 16kHz in any case.

The low-frequency response of the Verity Audio Leonore is depicted in Graph 3. It's obvious that the two bass drivers are operating in parallel, and the small differences between the traces would in the most part be due to manufacturing variations between the drivers themselves and the dif-

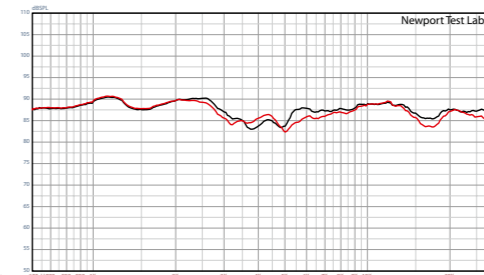
ferent acoustic loading resulting from their positioning on the baffle... not to mention minor errors in the measurements themselves. However, none of that would seem to account for the very large differences below 30Hz, which would seem to warrant further investigation.

The port's output peaks at 25Hz, but it doesn't appear to contribute too much to the overall output, though being rear-firing its output would certainly be affected by its proximity to a nearby wall (or walls). There appears to be a small amount of high-frequency 'leakage' from the port up around 500Hz and 1kHz, which seemed odd to me, until I re-considered the response of the rear-firing drivers and it occurred to me that they're rolled off very slowly... perhaps even the natural roll-off of the drivers, which would certainly account for it.

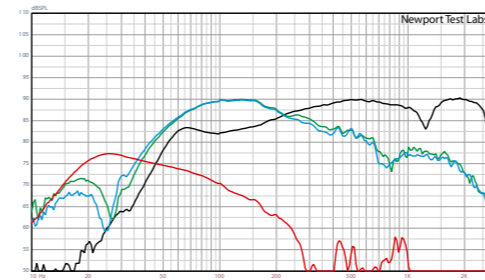
“ Although the broad suck-out might be audible, as it's over two octaves, those two octaves are almost entirely above the highest 'E' on the piano keyboard... ”



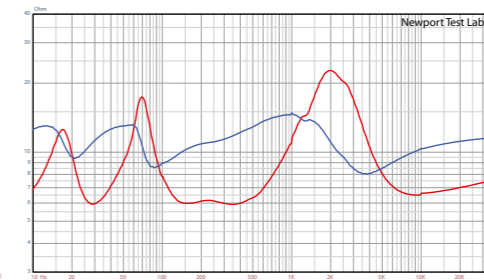
Graph 1. Frequency response. Trace below 9.5kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus with capture unsmoothed. This has been manually spliced (at 9.5kHz) to the gated high-frequency response, an expanded view of which is shown in Graph 2. [Verity Audio Leonore Loudspeaker]



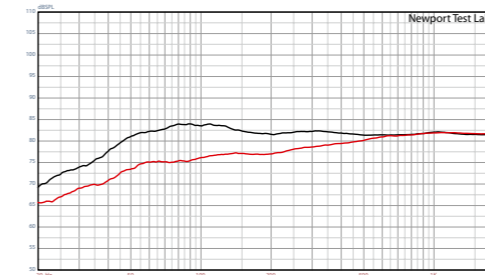
Graph 2. High-frequency response, expanded view, with loudspeaker grille on (red trace) vs loudspeaker grille off (black trace). Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 600Hz. [Verity Audio Leonore]



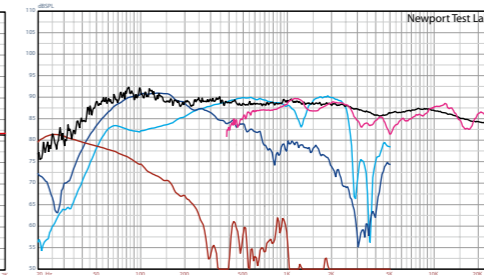
Graph 3. Low frequency response of front-firing bass reflex port (red trace), lower rear-firing woofer (blue trace), upper rear-firing woofer (green trace) and front-firing mid/woofer (black trace). Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas. Mid/woofer compensated for distance. [Verity Audio Leonore Loudspeaker]



Graph 4. Impedance modulus (red trace) plus phase (blue trace). [Verity Audio Leonore]



Graph 5. Low-frequency response showing effect of wall proximity on bass response. Black trace shows response with speaker 15cm from rear wall. Red trace shows response with speaker two metres from rear wall. [Verity Audio Leonore Loudspeaker]



Graph 6. Composite response plot. Red trace is output of bass reflex port. Dark blue trace is summed anechoic response of bass drivers. Light blue trace is sine response of bass/midrange driver. Pink trace is gated (simulated anechoic) response above 400Hz. Black trace is averaged in-room pink noise response. [Verity Audio Leonore Loudspeaker]

The response of the front-firing driver is certainly unusual, rolling off below 500Hz at 6dB per octave, but then plateauing before rolling off very sharply below 60Hz. There's a very sharp dip in the response at around 1.3kHz that seems to be the result of a resonance, as it's reflected in the impedance and phase traces (see Graph 4). I would guess from this graph that the 'nominal' crossover frequencies for the Leonore are at 250Hz and 2.5kHz: unfortunately Verity Audio doesn't state the x/o frequencies in its specifications, just that it's a 'four-speaker, three-way design'. I say 'nominal' because it would appear that the two bass drivers are not part of the main crossover network, but instead are rolled off by their own inductor, and the two front-firing drivers (the bass/midrange and tweeter, have their own individual crossover network in which the bass/midrange driver is not high-pass filtered at all, so the front-firing driver receives all low-frequencies as well as all of the midrange.

If my guess is correct, I'd personally consider the Leonore as a small two-way full-range loudspeaker (the front-firing drivers) linked to (and in a separate cabinet), a pair of bass drivers rather than a true 'three-way' loudspeaker. What this means is that at low frequencies, the two rear-firing drivers and the front-firing cone driver are all operating simultaneously. This would inevitably introduce deleterious phase and time delay anomalies, but according to Verity Audio's website, the advantage of its configuration is that its benefit: 'far outweighs any effects that may be created by minor woofer phase or delay errors'. The company's website also advised me to 'refer to our PDF document about "Low Frequency Reproduction" for further information', but I could not locate this pdf anywhere on Verity Audio's website.

Verity Audio's brochure does say of the impedance that it's 'even, nominally 8Ω' and although I'd agree with the 'nominally



8Ω' bit, it's really no more 'even' than I'd expect of any loudspeaker design, save that it appears there may be some compensation in the crossover to ensure the impedance does not drop below 6Ω between 150Hz and 400Hz. In fact the minimum impedance is exactly 6Ω, just as claimed by Verity. In addition to the 'wrinkle' at 1.3kHz in the impedance trace that mirrors the one in the frequency response noted previously, there's also a glitch at 2.5kHz, possibly crossover-related, but of no real consequence. (You should ignore the small glitches at 100Hz, 1kHz and 10kHz, these are simply caused by the test equipment's automatic range-switching circuitry.) The low-frequency resonances occur at 70Hz (18Ω) and 18Hz (12Ω), with the minima at 29Hz, which indicates good bass extension.

Bass response will be very dependent on the location of the rear of the speakers in relation to nearby walls and the extent of the effect is shown in Graph 5, where the black trace shows the low-frequency response at the listening position when the speaker is 15cm from a rear wall and the red trace shows the response when it's two metres out from the same rear wall. As you can see, there's almost a 10dB difference in the level of the bass from 100Hz down.

Graph 6 is a composite that puts all the measurements on the same graph to show the relationships between the multiple drivers and the port. It appears to show that the suck-out between 2.5kHz and 12.5kHz is at least partly influenced by some out-of-band products from the front- and rear-firing cone drivers.

Newport Test Labs measured the sensitivity of the Verity Audio Leonore at 88.5dB SPL at one metre, for a 2.83V_{eq} input, which is higher than average, but it is significantly lower than Verity Audio's own specification of 93dB SPL. *— Steve Holding*

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