

HIFI CRITIC

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THREE BABY ACTIVES

Active power can add features and shrink loudspeakers. We're testing models from KEF, Acoustic Energy and Airpulse

dCS NETWORK BRIDGE

Rafael Todes and Martin Colloms assess an increasingly essential hardware item, that operates as a streamer and connects servers to DACs

NAIM UNITI ATOM

Having waited for nearly a year, the Uniti Atom indicates that our patience has been worthwhile, says Andrew Everard

REGA NAIAD

Paul Messenger gets to try out Rega's super-radical turntable - Zirconium main bearing, aluminium oxide platter, CFC chassis etc.

WILSON AUDIO YVETTE

Martin Colloms tries the one-box Yvette, which replaces the Sophias and 'rattles down' technology from the models further upmarket

PMC TWENTY5.24

It's taken a while, but Chris Bryant finally gets around to trying the top 2-way model speaker from PMCs new range!

MUSIC & MORE

REVIEWED THIS ISSUE

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Wilson Audio Yvette

MARTIN COLLOMS TRIES THE WILSON AUDIO YVETTE, A ONE-BOX FLOORSTANDER THAT EFFECTIVELY REPLACES THE SOPHIA RANGE

My long running assessments of Wilson Audio loudspeakers date back nearly 30 years, when I reviewed the *WATT Three+Puppy Two* two-box speaker system for US magazine *Stereophile* in 1988. The two-box approach has undergone numerous upgrades and is now known as the *Sasha Series-2 (HIFICRITIC Vol8 No2)*, but Wilson Audio subsequently introduced a one-box equivalent in order to keep the price down. This began with the *WTTT*, evolved into various *Sophias*, but the latest version is called *Yvette*, and is the topic of this review, and is currently priced at £30,000/pair.

Once correctly positioned, our well run in loan samples were spiked with the Wilson *Diode* alloy cones. The supplied 'room averaged response' is quoted as 20Hz – 25 kHz ± 3 dB, though my own measurements show increased room absorption at higher frequencies. Wilson Audio also suggests a minimum amplifier power of 50W/8ohm, noting that the impedance is quoted at 4ohms, with a minimum mid-bass value of 2.94 ohms.

The enclosure shape is subtly different from the *Sophias*, with a more complex curvature and some angled facets reminiscent of *Alexia*, although the connection with *Sophia* is clear enough. However,

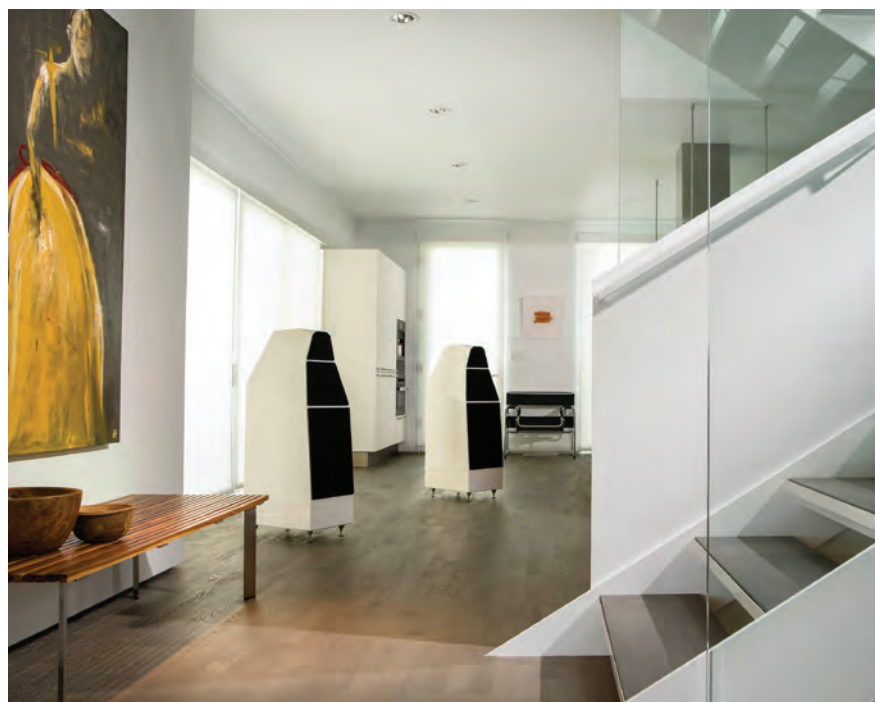
improved contouring of the top section now approximates to an idealised, lower diffraction spherical baffle, with differential driver angling to promote sharper image focus. Compared to *Sophia Series-3*, the driver line-up still has a 250mm, 10in, bass driver, reflex tuned by a deep, 3in diameter alloy port. A new 6in resin-loaded pulp cone midrange (from the XLF) partners a 1in soft dome tweeter. The mid enclosures are now vented by a horizontal slot.

The bass driver replaces *Sophia's* alloy cone with the resin-bonded fibre cone driver first seen in *Alexia*. The midrange unit has a 17.8cm chassis that's slightly larger than before, though the diaphragm is the same diameter. The Scan-Speak-made Wilson Audio tweeter is a doped silk 25mm rear-loaded dome, as seen in the higher end models. It replaces the concave titanium foil tweeter that was sourced from Focal. An industry average sensitivity of 86.5dB/W (8ohm) is specified, but a 4ohm speaker would take more current and provide 3dB more, which is why we ended up with a quite high measured 89.5dB.

It measures 110cm high, is just under 34cm wide, and is also a quite deep 51cm. The bass alignment has now been retuned for better matched in-room low frequency drive. The enclosure is wholly composite, using mineral filled resin and cured polymers. These phenolics are rigid and have inherent self damping. Divisions and bracing sections maximise rigidity and help control unwanted panel vibration that might lead to audible colorations. Laser scanning helps address vibration modes.

As with previous versions the mid and treble drivers are protected from gross overload by combination attenuator/fusible resistors, fitted on heatsinks beneath an alloy cover plate. Although ideally the manufacturers settings should be left in place, the particular selection of these resistor values by the trained installer can provide some small adjustment of the mid and treble balance, eg in 0.5dB steps, to a maximum of ± 1.5 dB. Also note that very few loudspeakers of this calibre have overload protection built in as part of the design. As the review progressed and the system and loudspeaker arrangements were 'dialed in', there was actually no need for any adjustment of driver levels.

The high current crossover network is fully potted in a rigid catalysed resin, stabilising against



thermal variations and more particularly vibrations. David Wilson has long embraced this construction associating greater dynamic musical contrasts to its adoption. It is mounted to the base plate and couples well to the vibration sink represented by the floor. As before, electrical connection is by spade terminals only; two heavy-duty gold plated binding posts take a hex driver that is supplied. Amplifiers in the range 50 to 250W, preferably with good current capability, may be used, and in the Wilson tradition *Yvette* can play really loud and will drive larger spaces when required. As it is, a pair will deliver high 110dBA sound levels on music programme, in an average size room of 80m³.

Sound Quality

Good sounds were achievable right away. Both the inner balance and the radiated sound energy were notably even with frequency and were driving the room well. Arbitrary symmetric placement got the show on the road while adjustment of azimuth, inter-loudspeaker spacing, front wall distance and speaker angle to the listener provided rewards in terms of timbre, frequency response, bass level and timing, detail, image focus and depth.

A high level of driver integration was evident, such that the install process was orderly and incremental, unambiguously leading to an optimum placement and orientation. It was time to substitute the *Diode* spike system and complete the physical alignment. Be advised that the resulting gain in quality is far from trivial and then some minor adjustments of location, angle and azimuth were valuable for extracting the last measure of sound quality.

While listening kicked off with some popular stalwarts, some of the more subtle musical examples helped to bring out this loudspeaker's inner strengths more clearly. Yes, when asked, it can blow up an audio storm in the Wilson Audio tradition, where massive near-Hollywood dynamics are on tap, but for me it was extended listening to Radu Lupu's rendition of Beethoven's fifth piano concerto which showed how well balanced was the natural dynamic scaling and the well graded performance contrasts. The mildly clunky piano (the felts on the upper register hammers needed servicing) was revealed but so was the spirited orchestral playing that Mehta got from the Israel Philharmonic (Decca *SXDL 7503*).

With the *Yvette* the orchestra positively hums with energy and one is keenly aware of the dynamically changing balance of forces between the soloist and the string section. Here groups of musicians did not merge, but remained separate players working in close ensemble. As such a fine sense of orchestral performance was obtained. This constitutes an

insight into musical performance and reaches beyond technical, even critical discussions of minor colorations or related emphases in observed frequency response. This loudspeaker allows recordings to breathe ambience and depth, with a kind of illuminated acoustic glow.

Another strength is *Yvette's* highly capable dynamic expression, where it comfortably reached from whisper quiet to a full climax without faltering or audible limiting. Such valuable dynamic range, combined with realistic sounding dynamic contrasts, are one of several keys to unlock extended and musical listener involvement and excitement.

It has been a trend for the larger and more bass extended Wilsons to continue to show gains in musical timing and bass tuning playing and particularly so for ported loudspeakers such as these. Bass alignments have been introduced which show a tapered and more extended room matched alignment, conferring lower group delay and better timing. This quality is particularly evident on rock and jazz material, and is clearly evident in *Alexia's* formidably extended low frequency performance. Alabama 3's *Woke Up This Morning* was dynamic, with a performance of striking immediacy.

Cathedral organ was spectacular, with crisp growling notes in the deep bass and sparkling and spacious upper pipe registers, portrayed with no false woody sounds. *Yvette* handsomely improves on the outgoing *Sophia* in this area, and also packs a massive visceral punch in the low bass when called upon. It does go low, surprisingly so and with great control to at least 30Hz, and with rather lower distortion than the *Sophia* series. In fact the low level of listening fatigue experienced at high sound levels indicated that distortion was low throughout the frequency range, a supposition which was handsomely borne out during our later lab testing.

Image depth and perspectives were very good indeed, focus was in the top class, image width impressively wide with confident handling of phase-shifted off-stage effects. Coloration was genuinely low, with fine integration between the drivers and with very smooth crossover transitions. It also sounded very good with the grilles fitted, which is a tribute to their fine acoustic design, though the sound was just a little sharper, better detailed and focused with them omitted. As with *Alexia* the revised Wilson alignments for the lower frequencies are bringing rewards of better timing and more uniformly extended lower bass. Above all there was a sense of excitement and communication: we heard big soundstages, with all seeming to work in harmony and reaching beyond the raw technical aspects of sound reproduction.

"when asked, it can blow up an audio storm in the Wilson Audio tradition, where massive near-Hollywood dynamics are on tap"

Review System

Constellation *Inspiration 1.0*, Townshend *Allegri* control units; Naim *NAP500DR* power amplifier, Naim *SuperLine* phono stage with Linn *LP12* vinyl player (with *Keel* chassis and *Radikal* motor control), Naim *Aro* arm, Lyra *Delos* Cartridge; Naim *UnitiServe* network server and S/PDIF source; Linn *Klimax Katabyst* streamer-DAC; Naim *NDS/555PS(DR)* streamer-DAC; Wilson Audio *Sabrina*, Magico *S-5II*, Quad *ESL63*, BBC *LS3/5a* (15ohm) speakers; Naim *FRAIM* racks; Transparent *XL MM2*, Crystal *Ultra Diamond*, Naim *NAC A5* speaker cables; Naim *Super Lumina*, Transparent *MM2* and Van Den Hul *Carbon TFU* interconnects.

Conclusions

The Wilson team are on a roll, with recently promoted son Daryl making great use of the loudspeaker design toolkit that David Wilson so painstakingly assembled. While the amplifier load is a fairly taxing 4ohms, the sensitivity is usefully high, the frequency responses are highly accurate, and it performs with genuinely low distortion for reduced listening fatigue. Traditional Wilson Audio attributes including expressive and powerful dynamics, precise image focus, deep perspectives, micro-resolution of detail are allied to musical refinement, wide and deep perspectives, seamless integration, and upbeat bass lines, combined with an overall sense of harmony and equilibrium. *Yvette* punches well beyond its weight musically and is capable of genuinely high sound levels, conferring an exceptional dynamic range for its trim dimensions. It may be firmly recommended as a member of the Audio Excellence class.

Test Results

The frequency response data shows that this design has achieved a high level of accuracy. That seemingly improbable and ambitious in-room response claim for $\pm 3\text{dB}$ limits (given that no two rooms can ever be acoustically identical), was actually met from 20Hz to 10kHz, and over a narrower 200Hz to 7kHz band in fact achieved $\pm 1\text{dB}$, which is an unprecedentedly accurate result. This means that the sum of the energy in the forward radiating direction is extremely well constructed, as is a sweetly tailored interface to the room at lower frequencies. Here the in-room result was equally impressive in context, a genuine 20Hz to 20kHz at $\pm 3.5\text{dB}$ where $\pm 5.0\text{dB}$ would be a more typical loudspeaker tolerance in this region. I fed sine waves down to 20 Hz and they were loud and clear with barely audible (second harmonic) doubling, even at the lowest frequencies. For music signals such minimal distortion at low frequencies is considered inaudible.

Looking in more detail, the primary axial, pseudo-anechoic gated frequency response was nicely wide at 28Hz to 22kHz $\pm 2.5\text{dB}$, and would have been 30Hz to 20kHz at a very accurate $\pm 1.5\text{dB}$, but for a minor and momentary axial dip of 2dB at 3.2kHz. There is also a narrow dip for the above axis measurement at about 1.2kHz, but it is only a fraction of an octave wide and unlikely to be an issue. The below-axis reading at crossover dipped by a satisfactory 7.5dB at 2.5kHz. Clearly ear height and loudspeaker angle to the listener will be a fairly critical and worthwhile adjustment. The upper treble remained smooth, both above and below axis, suggesting low diffraction from this enclosure which will promote sharper stereo focus.

By 15 degrees laterally off-axis (a good target for an overall assessment), the third octave weighted frequency response was very good indeed, namely $\pm 2\text{dB}$ from 33Hz to 18kHz, and this manifestly smooth trend remained stable right out to 30 degrees, and was only beginning to droop a little above 7kHz at a wide 45 degrees. The overall off-axis trend was also seen to be nicely uniform, and with very good directivity.

The early decay response for $t=0$ on the waterfall graph shows almost linear phase behaviour, confirming the well behaved drivers and crossover, and a rapid early decay. Soon after that initial response some other features show up, at 2.5kHz and 4kHz, showing that some smaller buried resonances are also visible in the output of these cone radiators, and this is not unusual.

Note the small glitch of just a couple of dB in the axial high frequency response at about 16kHz: interestingly it stems from a moderate ‘buried’ resonance which shows more clearly in the waterfall presentation for energy decay with frequency, appearing after about 0.1 milliseconds as an extended ridge at this frequency, and lasting about 2.5 milliseconds before dissipating. It is possible that a minor ‘fizzy’ artefact might just be audible on some sounds in the high treble.

The pair matching was quite excellent, which is rather important in a loudspeaker of this quality, and the left and right examples were held to $\pm 1\text{ dB}$ from 50Hz to 15kHz and were actually within $\pm 0.5\text{dB}$ over most of the range. This correlates well with the stable image focus heard.

Ultimately I preferred the slightly sweeter treble heard with the grilles off, but even so these grilles are very well designed. With less than half a dB in it up to 1.5 kHz, the average grille loss was just 0.3dB, with the noted values masked by some residual minor diffraction from the grille framing.

The paper impedance specification was met to a



close tolerance, with a 2.9ohm measured minimum at 95Hz, though falling a to little below 2.0 ohms in terms of equivalent current draw at the more reactive combination found at 60Hz, so it really needs current-capable solid state amplifiers to get the best results. I would have preferred to concede 3dB of that high sensitivity for an easier amplifier and speaker cable loading, but I know that I may be in a minority here. It has to be said that above 400Hz the loading is actually quite kind (6ohms or better), and with a desirably low phase angle too. Interestingly this loudspeaker's bass enclosure is tuned very low, 24Hz, which implies low phase shift and group delay to the lower audible frequencies. This result also confirms the still useful 20Hz in-room extension we observed on test.

Recent years have seen a steady reduction in harmonic distortion for Wilson Audio designs, and I can report that this work has continued. Checks over the midrange at a loud 90dBspl showed very good results for the less critical second harmonic at typically 0.2%, and excellent for third at 0.05 - 0.02%. Raised

to a very loud 96dB sound level at 5kHz, the tweeter complained a little with 0.33% of second but held the more critical third to -73dB (0.02%). For 500Hz (an important power region, and tested at a high 96dB), second was fine at 0.2% while third was a very good 0.04%. At a useful 86dB SPL for 150Hz, both second and third were both very good at 0.15%.

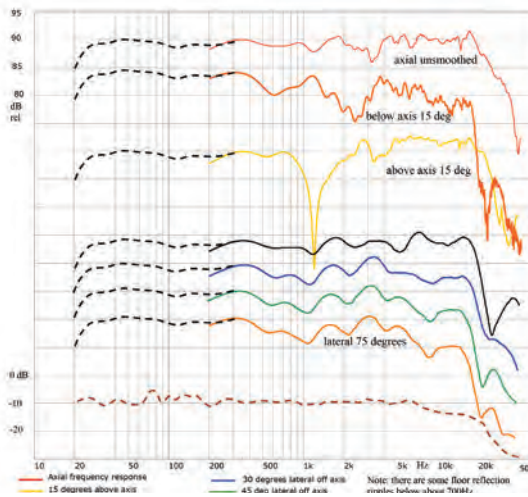
Distortion at lower frequencies is in any case subjectively rather less audible, but *Yvette* did well here too at 96dB (thunderingly loud in my room at 35Hz), with 0.9% second and 1.3% third, these judged inaudible. For 86dB at 30Hz, the second harmonic was really low at 0.14%, with third just fine at 0.35%. It could still play aurally clean 25Hz sine waves at up to 90dB SPL. The overall control of third harmonic shown here is commendable and this quality is generally associated with tonal neutrality, cleaner high level transients, reduced fatigue and better transparency. These are a very good set of test results, while noting that impedance dip, suggesting high current capability solid state amplifiers will give the most representative results.



HIFICRITIC September 2017 Loudspeaker laboratory measured test results

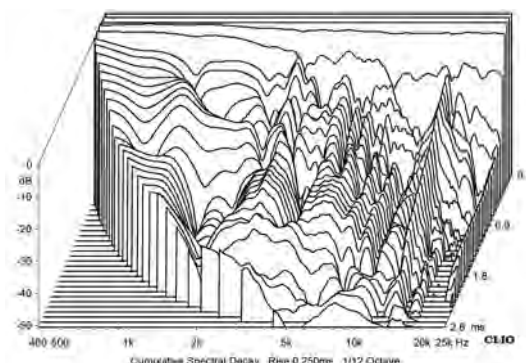
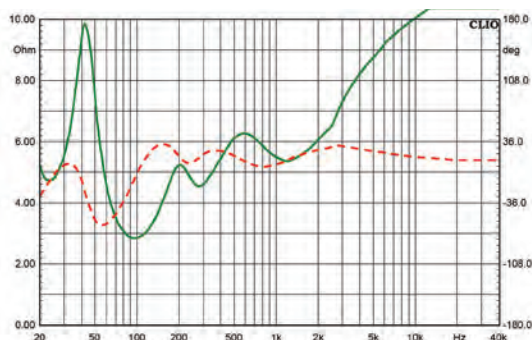
Make, Country	Wilson Audio, US
Model	Yvette, Moving-coil, 3-way floorstander, reflex loaded
Price per pair (finishes)	£30,000 (Wilsongloss finish)
Size (WxHxD), weight	33.7x104x51 cm; 80kg, 175lb
Type	3-way taper-tuned reflex 25.4cm pulp cone LF, 18cm pulp cone MF, 25mm silk dome HF
Sensitivity for 2.83V	89.5dB @ 1m (2.83V) (measured)
Amplifier loading	Min 2.9ohms (2.94ohm spec); (4ohm nominal)
Frequency response: axial	33Hz - 20kHz ±2.0 dB (listener axis; very good tolerance)
Frequency response off-axis	Very good: see graphs and in-room response
Bass extension	25Hz -6dB, (for a practical 20Hz, in-room limit)
Max loudness, in-room	110dBa for a stereo pair
Power rating (min, max)	30W, 200W
Placement	Floorstanding, in free space

Wilson Audio Yvette: Frequency Responses



Wilson Audio Yvette: Waterfall Display of Energy Decay with Frequency

Wilson Audio Yvette: Load Impedance and Phase (red)



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