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Rega's new low-mass, high-stiffness RP10 record player changes the rules of turntable design

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SPIRAL GROOVE
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UPGRADING THE SASHA
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Upgrading the Sasha

WILSON AUDIO HAS UPGRADED ITS SASHA TWO-BOX FLOORSTANDER. MARTIN COLLOMS ASSESSES THE NEW SERIES-2 VERSION

MARTIN COLLOMS

This two-box three-way loudspeaker system has roots that go back to Wilson Audio's early days. The company's second product, introduced in the mid-1980s, was a small but decidedly hefty two-way, christened the *WATT* (Wilson Audio Tiny Tot), and was originally developed as a transportable recording monitor. However, it also proved successful as a domestic loudspeaker among the audiophile community, and these customers started asking for greater bass capability. Around 1989, WA introduced a partnering *Puppy* woofer unit, which not only added the extra bass but also acted as a stand to support a *WATT* when it was being used in a home system, the combination being unusually compact and discreet.

Initially known as the *WATT/Puppy* (sometimes abbreviated as *W/P*), these went through several iterative improvements over the next 20 years before the *Sasha W/P* was introduced in 2009 – still arranged in two separate enclosures, but now effectively a integrated three-way speaker. Coming right up to date, the subject of this report is the recently introduced *Sasha Series-2* (£28,450), so the series as a whole could well be said to have began back in 1989, and will likely have been in production for some 30 years before this latest version undergoes further revision.

I have assessed most of the *W/P* versions, and it has been interesting to track the progress of founder David Wilson and his design team painstakingly researching almost every aspect of build, drivers, crossovers and time alignment. Our last *W/P* review was for the first of the *Sasha* series, released in 2009, and published in *hificritic Vol3 No4* (Oct-Dec 2009). Paul Messenger was the prime reviewer on that occasion, while I provided support with a lab report and a second opinion in a different room.

Although David Wilson originally designed the *WATT* as a compact transportable nearfield monitor for his own use back in 1985, when mounted on

delivered a fine performance in the *Alexandria XLF*, the *Alexia*, and more recently the *Duette Series 2*. A custom rear chamber helps optimise the bandwidth for this *Sasha* application.

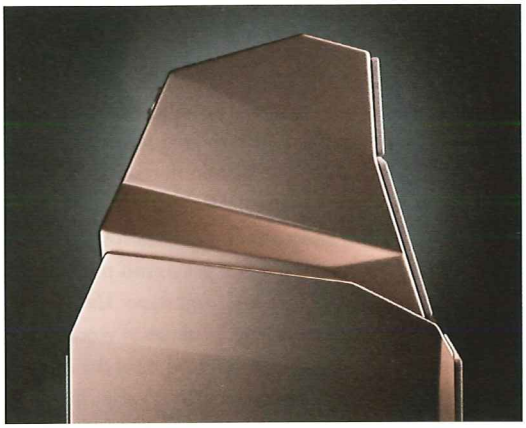
Wilson Audio has used ever higher density bonded fibre for its enclosures for some years now, and currently uses low resonance, cured resin panels with very high mineral and other loading. These are essentially stable and non hygroscopic, and therefore resistant to tropical and high humidity conditions. In particular Wilson Audio has found that different proprietary formulations (dubbed S and X materials, for example) have properties that are specifically better suited to different frequency ranges and driver mountings in minimising unwanted acoustic vibrations.

For *Sasha Series-2* the mid-treble enclosure is therefore now made in two grades: the bulk is X material, while an angled S material inset is optimised for the midrange driver's vibration signature. Wilson Audio is very aware of the need to control reaction vibration from the driver frames. This new design uses the costly and dense X material for the entire bass enclosure, in order to help impart a 'faster' sounding bass line.

The Audio Spectrum

The industry tends to characterise the bass region as roughly 20Hz to 500Hz, the midrange between 500Hz to 3kHz, and the treble the frequency range above 3kHz. While this is quite convenient from an engineering perspective, and is largely dictated by the physical properties of the available materials, these divisions can be misleading when music is considered. While harmonics are vital in order to characterise timbre, tune playing fundamentals are very important. Since the piano's middle C is typically 262Hz, most 'tune playing' on this instrument occurs below 600Hz, which is barely out of the nominal 'bass' range. Sure, harmonics need encouragement, or the notes will not sound as if they are coming from a piano (let alone which model), but the fact remains that most of the so called midrange, including voices, comes within the nominal bass range of many loudspeakers.

It can therefore be cogently argued that the bass really lies below 120Hz, while treble proper begins above 1kHz. The highest treble notes and their characterising harmonics can be found in the range above this, up to the limit of audibility. Of the eight octaves of the audible frequency range, it should be remembered that there are only eight scale notes between 10kHz and 20kHz, and that there is very little musical content above 10kHz in any case. Contrast this with the much more informative region between 250Hz and 500Hz, which also has eight



notes. From the mathematics alone, the numbers involved in audio frequencies can easily give a false view of the relative importance of the various parts of the audible frequency range.

Wilson Audio has long recognised this, and uses larger-than-usual midrange drivers that extend down to lower frequencies than most – to 200Hz in this case – to cover the lower midrange at higher quality. The pair of 8.5inch bass units used to be Dynaudio sourced, but are now made by Wilson Audio itself, and have rigid die cast frames with powerful motor systems and strong surround suspensions. Other changes include moving the mid-to-treble crossover network to a sealed compartment in the upper part of the enclosure, and the improved connection practice of those heavy duty, spanner tightened binding posts.

Sound Quality

Wilson Audio's larger designs are intended to drive generous spaces and US-style semi-open-plan listening rooms, so they often need more careful placement in UK rooms to achieve a sufficiently upbeat and well balanced bass. The *Sasha Series-2* helps things along with a more even and extended bass than before, thanks to the retuned crossover and enclosure.

The speakers had already received a week's running in, and I added another 100 hours before beginning serious listening. My system was configured with its familiar toys, and the *Sasha Series-2*s quickly settled in. There were no worries about tonal balance, coloration, resolution or stereo focus, as these qualities are almost a given with this speaker series. However, I also looked for performance aspects which might correlate with the design revisions.

The new mid-treble assembly and alignment plus the new tweeter has undoubtedly woken up the design, which now delivers class leading stereo images of a truly natural height (the latter something of a Wilson Audio speciality), and also shows fine image projection, both forward and well back into the soundstage.

The Review System
D'Agostino *Momentum Stereo*, Constellation *Centaur,* Naim *NAP300* power amps; Audio Research *Reference 5 SE,* D'Agostino *Momentum Balanced Pre-amp,* Constellation *Virgo,* Townshend *Allegri* control units; MSB *Diamond Signature IV Select* DAC with *Diamond* supply, Naim *UnitiServe* and *NDS* digital sources; Wilson Audio *Sophia 3*, Linn *Klimax Exact DS system* , Quad *ESL63* speakers; Finite Elemente *Pagode Reference* racks; Cardas *Golden Reference*, Naim *NACA5* and Transparent *XLmm2* cables.

The lowered noise floor can be clearly heard in the very fine dynamics, transparency and deep stable images. This design performs well 'out of the box', with sparkle, effusive energy and an open, bold sounding presentation. It also proved more revealing of amplifier differences than its predecessor, and I spent some time with different makes and models finding interesting synergies and correlations.

It seemed to slow down and yet sound more honeyed when used with the D'Agostino *Momentum*, where it's perhaps more suited to classical works. The less powerful Naim *NAP300* showed how the *Sasha Series-2* could be 'woken up' to deliver crisp, more forthright sounds with a better defined percussive beat. However, the Naim was not powerful enough to exercise its full potential – something of the tail wagging the dog. A rather more costly Constellation *Virgo* and *Centaur* amplifier pairing was also available, and again the picture changed, so well did this loudspeaker read such differences. Now the subtlety of the D'Agostino seemed to be combined with the directness of the Naim, alongside substantially greater power and authority, and this amplifier/speaker combination took off with thundering dynamic clarity and fine imaging, alongside very good low level detail and musical commitment.

As the listening sessions concluded, the overall picture for the new speaker compared to its predecessor was of a faster and more tuneful bass with greater low frequency extension, a clearer soundstage with lower coloration, and a still more upbeat quality combined with very good dynamic expression. Enclosure coloration was evidently reduced, and this was especially noticeable with naturally balanced classical works. Integration between the drivers was almost seamless, and stereo images were stable and crisp, the whole imbued with an explicit clarity and capable of thrilling peak level climaxes.

Test Results
The specification quotes a precise 2.17ohm minimum impedance but I would happily agree on 2.2ohm, which is a significant improvement on the previous model's 1.8ohm minimum, reducing peak current draw by 25%. Better still, the associated phase angle is reduced, to just 21degrees at the minimum. The mean impedance measures at about 5ohms. Unlike the many optimistic sensitivity figures that other manufacturers sometimes claim, this was very close to that specified at 91.5dB/W, a fine value in context that makes the most of every watt. With a 500W peak power reserve (unclipped power on good music sources) the Sasha 2 should kick out an exciting 111dB maximum in a decent room in stereo. Pair matching was also very good at +/-0.35dB right up to 18kHz.

The axial response is smooth and well balanced, extending from 28Hz to 22kHz +/-3dB and free from any ultrasonic peak. The 'above axis' output dips at 4.4kHz, but not by much, while the more relevant 'below axis' output holds up well, right out to 19kHz. The directivity shows further improvements from the previous model; it's still respectably accurate at 15 and 30degrees laterally off-axis, and only a couple of dB down by 18kHz. At 45degrees laterally one would expect some loss but even here the results remain very good, for natural sounding sidewall acoustic, before finally declining at 60degrees where a mild 1.8kHz prominence begins to show.

The room curve measurement is certainly quite similar to the outgoing model: uniform from 50Hz to 12kHz and with a gradual decline beyond. A hint of upper midrange prominence from 900Hz to 3kHz will add a little extra: an out-of-the box sense of 'projection'. And of course the adjustable aiming feature for the mid/treble head unit, plus the driver protection resistor adjustment will together provide some scope for fine timbre tuning in a given room.

Grilles are always contentious; they do introduce some loss, so should they be designed to be on or off? The *Sasha Series-2* grilles do perturb the mid treble by typically +/-2dB and are audible, at least to me. The overall treble loss is actually quite small, typically -1dB up to 25kHz, but I found the sound had superior dynamics, clarity and focus when they were left off.

Spot checks for distortion showed better than average results. At 10W/102dB/100Hz, second harmonic was a barely audible -38dB and third harmonic an excellent -58dB. At a still loud 1W second harmonic had improved to almost 0.3%. At modest music levels (around 80dB) midband distortion was very good (0.08% to 0.15%). In the mid treble the best result at a louder than conversation level (82dB) dipped to 0.05% second harmonic and 0.08% third harmonic. Even at 25Hz/92dB distortion averaged just 0.5%, which is a very low figure.

The port is tuned to a quite low 24Hz, so this large reflex-loaded design holds group delay to a relatively small value. Additionally, very little spurious port output is present: this is typically held below 30dB up to 3kHz (before aperture correction), which is a good result. Trying *Sasha Series-2* in sealed-box mode by using 3in barrel corks, the nearfield bass suggests a flat response down to 70Hz with -6dB at 45Hz – just right to deliver a smooth and slightly over-damped low frequency character in a smaller masonry built room. With the port open there is more bass in the 24 to 50Hz range, and

when operated in this way the sound was also more dynamic in my room.

The waterfall graph for decay behaviour showed that the early response was beneficially close to linear phase, with a solid, across-the-range clearing for resonance decay, and hardly any perturbations of significance. That tiny dip at 16kHz (an essentially inaudible characteristic of this Wilson Audio soft dome tweeter) is also seen in this graph but is considered to be essentially harmless.

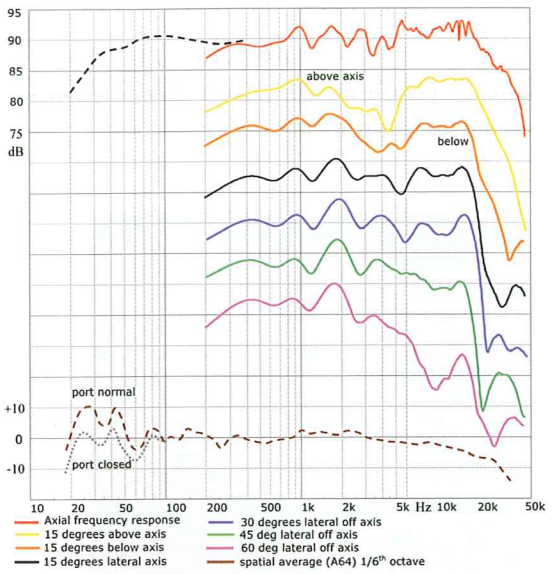
Conclusions

This new speaker has a price increase of 10% over its predecessor, but the UK price (£27,000 back in 2009) remains almost unchanged, due to an improved sterling to dollar rate, and from my results *Sasha Series-2* has benefitted from a series of incremental and worthwhile improvements. Fit and finish remains first class, the amplifier loading is better, and although it remains a pretty taxing 4ohm rated design, it now will play louder on most amplifiers (both solid state and higher output current valve models). Sensitivity is high and it will happily drive larger venues when required. It has a wide, smooth frequency response and worthwhile time alignment, reinforcing stereo focus and image depth that now set really high standards. It could even be regarded as the 'smaller' *Alexia*. *Sasha Series-2* certainly packs a powerful, upbeat musical punch, and the new version may be confidently recommended, for delivering a comprehensive and audibly satisfying all round improvement in engineering, sound and build quality.

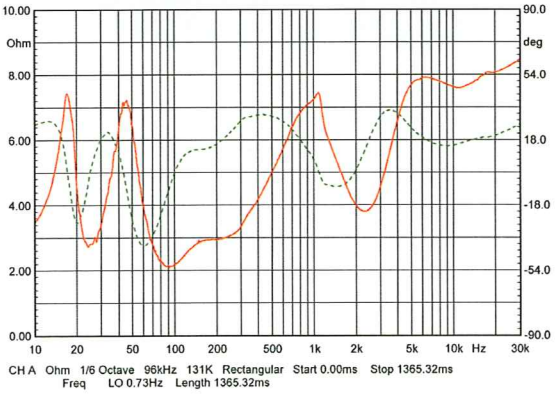
HIFICRITIC measured test results

Make	Wilson Audio
Country	USA
Model	Sasha Series-2: synthetic composite build, moving coil, floor standing, reflex loading
Price per pair	£28,450 (includes home installation and fine tuning)
Finishes	range of automotive gloss lacquers
Size (HxWxD)cm	118x35.6x56cm
weight	94kg (207lb)
Type (infinite baffle)	3-way: 2x20.3cm filled polymer bass; 18cm pulp/composite midrange, 26mm silk dome treble
Sensitivity for 2.83V	91.5dB/W measured (2.83V/8ohm watt); (92dB claimed)
Amplifier loading	4ohms typical, 2.2ohm min; below average loading
Frequency response, axial	28Hz to 22kHz +/- 3.0dB (listener axis); very good axial tolerance
Frequency response off- axis	Very good: see graphs and in-room response
Bass extension	24Hz -6dB anechoic, (20Hz, -6dB in-room limit)
Max loudness, in-room	110dBA for a stereo pair
Power rating (max, min)	500W, 20W
Placement	Free space, floor spike coupled

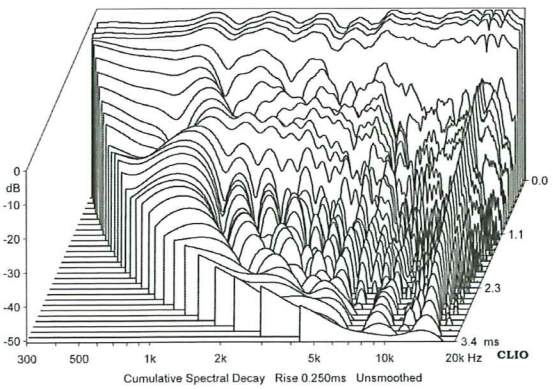
Wilson Audio Sasha 2 Frequency Response



Wilson Audio Sasha 2 Frequency Response: Impedance (Or) and Phase (Gn dashed) (Min: 2.2 Ohm)



Wilson Audio Sasha 2 Waterfall display of Energy Decay with Frequency and Time



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