



Bewitched by Sabrina

MARTIN COLLOMS LISTENS TO THE MOST COMPACT OF WILSON AUDIO'S FLOORSTANDING SPEAKERS, THE SABRINA X, ALMOST FIVE YEARS ON FROM HIS REVIEW OF THE ORIGINAL SABRINA. ALTHOUGH THE PRICE HAS RISEN BY ALMOST 37% IN THE INTERVENING PERIOD, FROM £16,000 TO £22,000, HE STILL FINDS MUCH TO ENCHANT HIM

This is the smallest of the many floorstanding Wilson designs: I reviewed the original Sabrina some five years ago for the HIFICRITIC autumn issue of 2016 and found much to like. Easy to place, it is also attractively styled, tapering vertically from a larger base. A classic three-way design, it's so clearly a member of the extended Wilson loudspeaker family begun some 40 years ago – created by the founder David Wilson, and now ably continued by his son Daryl.

Daryl made a significant contribution to the original Sabrina and has also closely directed the design team for the upgrade to the latest 'X' version. It would be crazy materially to change so successful a design, and the new 'X' version is said to build firmly on the strengths of the original.

Technical improvements, plus five years of inflation, transportation and importation costs from Provo, Utah, have driven the price up to £22,000, with some optional high gloss paint finishes –

available to order – commanding a further premium. The original was £15,000 in the UK, and in 2016 example set a cracking pace, performing beyond size and price. It won high subjective and objective ratings, with the latter including a very fine set of lab test results, save for a caution with regard to its equivalent '4 ohm' amplifier loading which was considered a little heavier than usual. This could result in current clipping for some driving amplifiers at peak levels, though how this would audibly

The System

Constellation Inspiration 1.0 pre, Townshend Allegri Pro control units; Naim NAP500DR power amplifier, Dartzeel LHC-208 integrated, Naim SuperLine phono pre, Linn LP12 player with Keel chassis and Radikal motor control, Naim ARO arm, Lyra Delos cartridge, Naim UnitiCore network server and S/PDIF source; Linn Klimax Katalyst streamer-DAC Naim ND555 Streamer-DAC, with two 555 PS DR power supplies, Wilson Audio Sasha DAW, Magico S-5II, Quad ESL63, BBC LS3/5a (15ohm) speakers; Naim Fraim racks; Transparent XL MM2, Naim NAC A5 speaker cables, Naim Super Lumina, Transparent MM2 and Van Den Hul Carbon TFU interconnect cables.

manifest itself is hard to predict. This behaviour is easy enough to see in the laboratory but that observation may not relate well to complex, transient rich music programme when a given amplifier/loudspeaker combination is evaluated by ear. As the issue is present only at lower frequencies and partially obscured by the usual room modes, it is probably less important than it might first appear.

With that caveat, the standards set by the original Sabrina were very high, so clearly this latest version will need to work hard to maintain its position in the review ranking. I first heard Sabrina at the HFN-RR Hi-Fi show in the autumn of 2015, where a large audience was enjoying a pair playing to impressive effect in a particularly difficult, bass absorbing 50-foot-long room. This required close-to-wall positioning for the speaker, coupled with very high power for sufficient audience penetration, yet the loudspeaker showed no noticeable signs of distress, well illustrating the high power handling and exceptional dynamic range generally characteristic of Wilson Audio designs. Here was proof that this design will happily drive large rooms when required, despite being the smallest floorstander in the Wilson series.

Introduced in late 2014, the Sabrina has proved very popular, its relatively small footprint and one-piece construction making it easy to place and align. That public demo also demonstrated the little known behaviour of loudspeakers in larger rooms: the greater and more uniform density of lower frequency room reflection modes helps a speaker to sound more relaxed and uniform than when it is crammed into smaller spaces.

Our review pair was finished in high-quality Ivory lacquer: the standard colours are Wilson Gloss Carbon, Galaxy Grey and Quartz, and that Ivory, Diamond Black and Crimson Satin are available as an upgrade, with a full palette of custom and pearlescent colours to special order with a further up-charge. The floor interface hardware is also much improved, with rather heavier 'diode' spikes and larger diameter footers for more delicate floor finishes. Super gloss finishes are available to order for this metalwork.

There is an access/control plate, now located on the underside, which would have been more convenient if located as it was previously, on the back, though admittedly the new location is more aesthetically pleasing. Under this plate, the crossover network includes fusible, precision level setting resistors, conferring protection for the drivers in the case of gross overload.

Their main function, however, is to allow adjustment of the timbre or tonal balance via subtle variation of the resistor values. This is a rare and useful fine-tuning facility for this class of

loudspeaker, with subtle control of mid-bass, mid-range and high frequencies possible to cope with unusual room acoustics and locations.

The Sabrina X stands nearly 1m high, is 30.5 cm wide and 39 cm deep and weighs 50.8kg or 112lb – a UK hundredweight, and these days a two-man lift. At the back are a pair of heavily gold-plated single wire binding posts: brightly colour coded red and black, they're now designed for 4mm plugs as well as the usual robust spade connection, and may be properly tightened with a box spanner.

Design and Build

Anyone who has seen the internal works of a Wilson loudspeaker will know of the heroic size and quality of the components used in their crossover networks, from the internal custom-designed heavy-duty wiring harnesses by Transparent and generously-dimensioned air core inductor coils, to the selected, close-tolerance film capacitors.

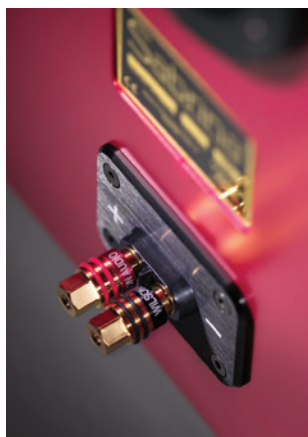
There's a story here concerning the large and costly audiophile grade film capacitors used in the speaker: for years these have been purchased in volume by Wilson Audio, and were so important to the company's products that when an opportunity occurred to buy the prime supplier, Reliable Capacitors (or RelCap™), it was taken and the production line brought in-house.

Typically these low loss polypropylene film caps were made to a range of standard 'E series' values, while specials were costly; now Wilson's own specials are dubbed the AudioCapX Series., and with the benefit of in-house production the company has made a number of manufacturing process improvements, and now has the means to make exact non-standard values optimised for a given loudspeaker design.

Subtle improvements in winding uniformity, termination, tensioning and tolerancing, using Wilson-redesigned machines, now offer +/- 0.2% accuracy, where +/- 2.0% was previously considered a high standard. These audiophile grade capacitors now benefit the company's latest speaker designs, not least our review Sabrina X.

This three-driver, three-way bass reflex design has a superbly built and finished enclosure and looks very tidy in the listening room, and really rather compact compared with the likes of my Magico S5II. With an extensively reinforced interior, all the enclosure panels and cross-bracing compartments now employ a top-grade custom High Density Fibreboard, the fully tropicalised proprietary X Material.

Low frequencies are fed to an 8 inch/210mm custom driver from Scan, using a die-cast frame, a long-throw motor and a pulp, while another Scan-based unit – a 146mm flared paper composition



cone driver with those famous radial damping slits – covers the midrange. The 1inch/25mm custom Scan tweeter, with its soft dome and critical damping, is drawn from Wilson's refined top of the line 'Convergent Synergy' inventory.

Both bass and mid sections use vented enclosures: bass reflex in the case of the larger volume, to extend and tune the low frequency range. The bass port is generously dimensioned (75mm/3inch), milled from solid aluminium alloy stock and looks impressive, is gas flowed and clearly capable of a substantial volume velocity with low turbulence noise.

Meanwhile for the mid the purpose differs from the usual response extension, the main objective being to extend and blend the low-mid frequency roll off and improve dynamic range by equalising inside and outside sound pressure which is engendered by the enveloping field of the bass unit. The low Q, overdamped mid vent or port is in the form of a horizontal slot with foam damping at the aperture which also helps reduce phase shift at the lower crossover point.

With a vertically tapered enclosure profile the aim is for a more constant power response over frequency, improving the uniformity of the overall sound delivered to the room acoustic. Diffraction at the enclosure edges is addressed with a layer of acoustically absorbent black felt surrounding the drivers: lying within the profile of the grille frame it also moderates acoustic reflection from this feature. Both measurement and listening tests showed this inclusion to be effective.

Sound quality

While the very well regarded Sasha DAW is the powerhouse of the smaller Wilson floorstanding series, at nearly half the price Sabrina X actually gives little away in this comparison: it has just a little less bass power and extension, and perhaps would be just the right choice for a smaller listening room, and where that extra dynamic range and maximum loudness is not required.

The speakers supplied for review were well-run-in demonstrators, and settled down rapidly, even after transit machinations including some weeks of cool warehousing. Placement was easy, the speakers being placed almost where the previous pair had been located, though with some minor tweaks to toe-in and vertical azimuth, the latter here by adjustment of relative spike heights to optimise timbre, focus and image depth.

The original Sabrina was so user friendly our initial view for the 'X' was..... 'So, what's changed?' However, we soon got the right idea. Here was an audibly revised design, sounding louder and punchier, but in a good way, drawing

one's attention: certainly it could not be ignored. This initial finding was with the grille off, in which configuration a little more toe-out might slightly moderate the upper frequencies compared with use with the grilles installed. Though the effect is hard to convey, there were moderate variations in timbre, focus and coherence with quite small changes in azimuth and toe in: these could be turned to advantage, exploiting them for fine tuning of timbre and focus in the room. However, as we'll see, the sound was best with the grille on.

Both macro- and microdynamics were really exceptional, and the Sabrina X positively sparkled with fine detail particularly in the treble range, offering what was quite clearly a worthwhile – if incremental – improvement over the earlier version. Clarity and image depth has also gained from the redesign, while the generous spatiality familiar in well played recordings was easier to appreciate. Sounding fresh and upbeat, musical information was abundant throughout the audible spectrum, while soundstages were transparent with surprisingly deep and wide imaging.

This was a textbook illustration of high resolution, and as a monitor it was able to reveal production values in recordings. As it settled in, it revealed itself to be an obviously accomplished performer: its dynamic range and expression sounded more like that of a larger design. Indeed, in bettering several more costly examples, it somehow manages to reach closer to the much larger Sasha than might be expected.

The Sabrina was no slouch in the bass in MK1 guise, but this 'X' version sounds still more full-blooded, more powerful, and able to reach deeper into the lower frequencies, meaning driving my large room was no problem at all. After the initial excitement it was evident that the timbre was more natural with the grilles in place, and we settled down to several sessions, over which time this confident performer delighted the listeners.

No-one wanted to change anything, the speaker sounding just right as it stood. Sabrina X's sense of propulsive drive was infectious, presenting a massive soundstage with fine depth, well illuminated with musical detail, crisply focused and differentiated. Bass dynamics were simply explosive.

This loudspeaker is clearly not just put together by rote, it has been expertly voiced to reach deeply into musical performances. Van Morrison can be taxing for the midrange of a number of designs, but the Sabrina sailed through this trial: his 'A Sense of Wonder' sounded close to as good as it gets, spacious and expressive, while Christine and the Queens' 'Cinq Dols' (the French language version has the best mix) was powerful, enveloping, super clean, excellently dynamic.

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HIFICRITIC AUDIO EXCELLENCE

Wilson Audio Sabrina X measured test results

Type	moving-coil, floorstanding, bass reflex
Price per pair	£22,000
Finishes	Wilsongloss, further colours to order
Size (WxDxH)	30.48 x 38.95 x 98.4cm
Weight	50.8kg (112lb)
Type	3-way, drivers 203mm cast frame pulp cone bass; 146mm frame pulp cone midrange; 25mm soft dome tweeter
Sensitivity	88.5dB @1m (2.83V)
Amplifier loading	
Impedance	2.0 ohm minimum (4ohm rated), 'average' amplifier loading (2 ohm dynamic)
Frequency response	Axial 38Hz to 18kHz ± 2.5 dB (listener axis), very good
Frequency response	Off- axis Excellent: see graphs and in-room response
Bass extension	34Hz -6dB (28Hz -6dB in-room, good extension)
Max loudness, in-room	110dBA for a stereo pair
Power rating	200W max, 50W min, for an 8ohm nominal rating
Placement	In free space on floor-coupled spikes
Price UK	£22,000

UK Contact:
Absolute Sounds
Tel: 0208 971 3909
www.absolutesounds.com

With a potential for sounding excessively aggressive if the overall balance is not under control, Keith Richards' *Main Offender* offered tuneful agile basslines with the correct, forward driving dynamic, and a super clear sound. Here was a big soundstage, wide and deep with stable height, and Neil Cowley also shows this quality of the Sabrina X so well on his track 'Hubris Major' from *Spacebound Apes*. However, it's also possible for this high resolution to expose the limitations of poor quality material.

Classical orchestral music was spacious, well focused and more 'open' than usual, a combination of an innate character and a timbre which is just slightly on the bright side in my admittedly underdamped room acoustic. Nevertheless image depth was very good, but perhaps I would avoid over-bright sounding sources and amplification with this loudspeaker. Colouration was generally low with just a touch of sheen on older massed violin recordings, and a trace of nasality on grand piano – perhaps subtly moving one's guess from a Bösendorfer to a Steinway.

The voicing tended more to the power, excitement and expressiveness of pop rock and jazz rather than striving for obsessive studio monitor accuracy on classical material. Even more, the Sabrina X could play very loud, enough for many applications where a larger design might have been first on the list of choices.

Later in the review some analogue disc evaluations were undertaken, and the latest Sabrina was found to excel, from *Aja* by Steely Dan to the marvellous totally silent surfaced Reason Swiss reissue of the late 1950's Beethoven Violin Concerto with Leonid Kogan. My Linn LP12 was showing signs of needing a tune up, and in fact by the afternoon of one session it started running slow and to my surprise and disbelief the main bearing had run dry. I switched over to the Vertere SG-1 record player and matching moving coil cartridge, which is also reviewed in this issue, and we were back up to speed again.

This source combination is similarly priced to the Sabrina X itself and proved to be a fine partner, inviting extended LP listening sessions: the speaker did work particularly well with LP, as if the designers had made sure that it would do well on these as well as with digital audio sources.

Conclusions

Save the usual technical reservation concerning the momentary dip in load impedance, perhaps inviting selection of the 4ohm tap when available with valve-tube amplifiers, the Sabrina X is a further refined version of the highly successful Sabrina. It has added clarity, image depth and focus, a crisper deeper bass, still lower distortion, greater power

handling and greater maximum sound level. In particular it times better, with a sense of refreshed musical enthusiasm, and proved to be nicely compatible with both analogue and digital sources

Lab Results

Unsurprisingly, the measurements showed broadly similar figures to the original Sabrina..

Frequency Responses

Because the sound output of a loudspeaker is as usual in part a function of angle, frequency, distance and local environment, the reported responses are necessarily something of an approximation. On the median axis, which is essentially directed at the listener, but here ideally toed out a few degrees, (about 5), the frequency response was commendably uniform from 100Hz to 17kHz falling within ± 2.5 dB limits, considered better than before, if also showing mild 'forwardness' at around 5-6kHz adding a touch of subjective 'crispness'.

Because the design is tilted backwards to improve time alignment relative to the listener, the treble 'improves' on the above axis measurement, now flat to a little beyond 22kHz. Otherwise, the high frequencies rolloff quite quickly above 18kHz with possible implications regarding high sample rate material for some listeners. Statistically you would also need to be less than 25 to notice!

Good uniformity is shown for the off-axis response, showing very capable crossover network integration for the driver outputs, though the 60 degree off axis output is curtailed a little more than is usually found. Conversely the particularly well balanced sound heard in the listening room was confirmed in the room average response which showed notably even energy drive over frequency enabling a neutral acoustic, combined with impressive low frequency uniformity and depth, with bass tones pretty solid right down to 30Hz. Pair matching was particularly good, showing close tolerance precision manufacture. An obvious benefit is sharper stereo image focus.

Distortion

Wilson Audio's designs have been improving in their distortion performance for some years now and Sabrina X continues this progress. With 2.83 V 100Hz input for a loud 88dB sound level at 1m, 3rd harmonic was excellent at better than 0.08% while the less aurally critical second was fine at 0.25%. At 10W it was clearly working harder, still with a mild 0.35% of 2nd but an increasingly noticeable 2.5% of third, including some higher harmonics, but still quite good for a modest, 8inch/200mm bass driver, and this was loud. At the peak music power frequency of 50Hz, 10W input resulted in a just audible 4% of second

(i.e., audible in the absence of broader band music signals) but the more unpleasant sounding third was held to an inaudible level at this frequency here just 1%. Down at 28Hz, closer to the vent resonance, the bass driver excursion is much reduced thanks to reflex back loading, and even at a high sound level of 107dB/m both second and third harmonics were impressively low at just 0.15%.

Sampling the test results higher up the range, a very loud 10W /500Hz gave a reasonable 0.8% of second but third was fine at just 0.05%. For moderate sound levels at 1.5kHz distortion from the upper mid was excellent, better than -66dB, 0.05% for 1W and typically just 0.15% for a really loud 10W. Similar results were obtained in the treble save for a blip at 16kHz 1W (very loud in music spectrum terms), here with 0.3% of second, this of course actually expressed at an inaudible 32kHz! This behaviour may be associated with that little decay glitch seen in the decay response at that frequency.

Sensitivity, Impedance/Amplifier loading

My best estimate for voltage sensitivity relative to 1W 8ohms is a fairly high 88dB/W but note the average impedance is about 5 ohms and that it dips to a low 1.7 ohms in the mid bass: the equivalent complex value is even less. If it were rated at 4ohms then the sensitivity for a 4ohm watt would be 3dB less at 85dB/W (4ohms). For a powerful high current amplifier, the voltage sensitivity result will hold but for a valve /tube amplifier the lower impedance value is more applicable if momentary current clipping is to be avoided towards full amplifier power.

Decay Waterfall

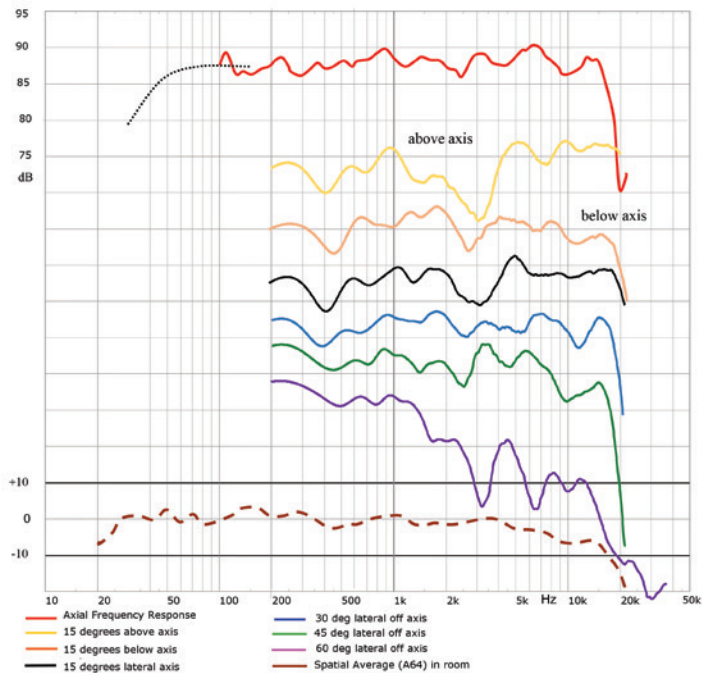
An improved phase response is evident both in the early clearing and some increase in 'white space' early in the impulse decay. Crisp, clean sounding transients are also associated with this behaviour. The high frequencies are particularly good confirming the fine transparency heard on test, while that 16kHz 'feature' is well suppressed on the decay field.

Power handling

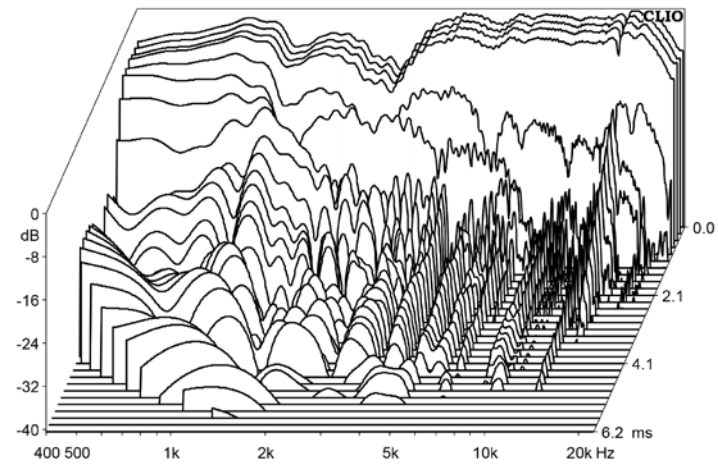
Power handling was really good. Up to 200W per channel will generate a generous 111dB/m short term maximum on-axis resulting in a healthy 106dB in-room for a stereo pair. While the speaker certainly punches rather beyond its weight, the amplifier should ideally be capable of doubling its 8ohms rated output power into 4ohms.

The port tuning, if judged from the nearfield graph, might suggest the power peak is at 43 Hz, but the more accurate information from the impedance trace reveals it's lower, at 40Hz. Room-coupled, the deep bass extends to a practical 35Hz. at good power, for a genuine big-speaker sound.

Wilson Audio Sabrina X Frequency Responses



Wilson Audio Sabrina X Waterfall Decay CSD



Wilson Audio Sabrina X Impedance (red) Phase (black) 4ohm nominal, 1.6 ohm min

