

# Q & A

## MC QUIZZES AVALON DESIGNER NEIL PATEL ON THE COMPAS



Avalon designer Neil Patel

**NP:** First may I make a brief statement regarding my personal design philosophy: all technical decisions are made in the context of achieving an aesthetic result. The sonic picture I want to paint is fully formed in the mind before the process begins. Each completed loudspeaker system design is its own entity, hopefully with a distinct and yet truthful character. Like the plays of Shakespeare, each illuminating an integral aspect of human nature, ultimately I would like our work to focus a ray of light on the opaque nexus of music, intellect, and emotion.

**Q:** The description for the *Compás* mentions design Q factors of 0.5, which is rather lower than the industry norm, here perhaps trading transient accuracy over matters of simple efficiency and loudness?

**A:** The desideratum here was first and foremost to achieve transient accuracy throughout the bandwidth. Technically, Q is defined as the ratio between energy storage and dissipation at resonance, and is indicative of transient behaviour, but is not its sole determinant or descriptor. The actual numerical quantity is actually closer to  $Q = 0.57$  in our case, reflecting a composite of proprietary Avalon bass tuning and crossover filter alignments that produce the desired transient behaviour.

**Q:** For the bass, is this achieved by 'Bl' or magnet strength control, or by partly damped 'bass line' loading, or both?

**A:** The four general variables that are manipulated in achieving our overall desired result are: driver parameters, cabinet volume and internal labyrinth length, electrical damping, and finally, venting parameters.

For the driver alone it is magnet Bl product; the force applied to the moving system, the moving mass, while voice coil inductance, capacitance, and resistance are all essential quantities in our overall mathematical modelling for low frequency design. Each of the previously discussed variables must also be quantified, with their respective components added to the overall mathematical model for the desired alignment.

**Q:** Or, is Avalon referring to the crossover transfer functions at  $Q = 0.5$ ?

**A:** Again, simply designating a specific transfer function for the crossover does not necessarily address the desired goal. In our case we have developed proprietary functions which maximise our most desired characteristics, namely phase and transient accuracy for the radiated sound.

**Q:** What factors are primarily responsible for the subjective gain in dynamics experienced with the *Compás*?

**A:** The previously mentioned transient and phase accuracy combined with low noise floor. Phase noise and energy storage will blur dynamic contrasts, both macro and micro dynamic.

**Q:** What could a purchaser expect to hear from the more costly *Compás Diamond* version, once acquainted with the standard *Compás*?

**A:** The primary function of a less deformable membrane such as super rigid diamond is an extension of bandwidth without the introduction of break-up by-products; thus lower noise. Simply substituting a stiffer diaphragm will not automatically get you more frequency response extension or better sound; in fact you must also preserve this gain in low level information from within the crossover circuitry and internal wiring.

The sonic benefit of the diamond diaphragm is similar to that found between the *Eidolon* and its *Diamond* version, a more open and relaxed high frequency presentation, and that in a certain sense it feels "less bright". Of course maximum benefit will be realized when the entire system of electronics and front-end possesses extended and accurate bandwidth.

**Q:** The bass port is short and small, with relatively little output, what is its purpose in this design?

**A:** Considering the port as a variable in the previously discussed LF tuning question, coupled with internal baffling, it is an essential design variable used for extending the in-phase behaviour at low frequencies. This concept goes well beyond the usual simplistic discussion of group delay error, but instead gets to the heart of our sonic philosophy, that the subjective sense of time is the most important quantity in music and must be preserved.

My feeling to describe where loudspeaker design has gone generally in this regard is that of "disgust". As a verifiable quantity and essential aesthetic quality, I feel that the valuing of the representation of time in sound reproduction has been unceremoniously left by the side of the road.

**Q:** Is it correct to say that the *Compás* is a 4ohm speaker but that the quoted sensitivity is scaled to an 8ohm watt, relying on a current reserve from a (solid state) amplifier?

**A:** This is correct. I'm still not quite sure that efficiency per se has much place in high-end audio as a quoted specification. Except for those who mistakenly think that efficiency is related to dynamic contrast. In my view issues of drivability are vastly more important than this single specification.

**Q:** Is achieving for the purchaser the inherent *Compás* timbre, its innate tonal balance, more reliant on room absorption than say an *Eidolon Diamond* or an *Idea*?