



AUDITORIUM
SERIES

R25
ANNIVERSARY



LIVINGVOICE



LIVING VOICE DESIGNER KEVIN SCOTT ON THE EVOLUTION OF THE AUDITORIUM R25 ANNIVERSARY

Why has the R3R been replaced with R25A?

We had noticed a change in the appearance of the diaphragm material of the R3R HF unit - a slight alteration in colour – and so we decided to compare the performance of these new units to our reference HF unit. There was a clear correlation with a change in its performance. We had previously learnt from the RW3 project that even if a diaphragm material is apparently identical in specification, with the same weight, warp, weft, and chemical composition, but comes from a different producer, there can still be profound performance differences – even if these aren't measurable. We therefore made adjustments to the crossover to accommodate this change and, whilst doing this we thought it was a good time to revisit all aspects of the design with fresh eyes and ears to see if there were any other performance gains to be made. This exploration coincided with the 25th anniversary year of production of the Auditorium model, so it seemed timely to celebrate this landmark with a greatly improved design and to name it the R25A to mark this anniversary.

How long did it take to develop the R25A?

It wouldn't be too pedantic or cute to say that the R25A has taken 25 years to develop. During its 25 year career, like all of the speakers in this series, they have benefited from continuous incremental improvements and refinements – including three quite significant design changes. We believe strongly in 'marginal gains' – not unlike Dave Brailsford's winning strategy with his Tour De France cycling teams. We pay attention to every single aspect of the design whereby a myriad of small contributions add up to a great deal. There is no single aspect of the design that hasn't received close consideration in the context of the whole. Our methodology involves a focused and exhaustive iterative development process, which is extremely time-consuming. In the case of the R25A this led to a complete redesign of the crossover from the bottom up to achieve our desired goals. The new crossover is considerably more complex in both design and construction, and it is a major performance step forward. Accordingly, we are permanently replacing the R3R with the R25A.

What are the principal benefits sound-wise?

The most significant thing to me about the performance of the R25A is how seamlessly integrated and coherent it is. This is an overly used description, but in this case, it is so striking, with a 3-dimensional quality that you can look in to and see through. There is a singular lack of confusion or ambiguity, even in the most complex musical passages; an innate rightness about the balance that makes music make sense.

How does R25A compare to the other speakers in your range?

The R25A has the same musical values as all Living Voice loudspeakers, albeit achieved with a different set of ingredients and a slightly different balance in the round. This is our most affordable model, and a solid step onto the Living Voice ladder. A good loudspeaker is not strictly about aspects of 'hi-fi sound quality'; it is about creating a musical coherence and coordination, and in this respect, I believe we have achieved a very high standard.

What are the constructional differences between R3R and R25A?

The cabinet and vent tuning is the same as the R3R, but that's where the similarities end. We have made significant changes to the crossover, bringing the crossover point lower, as well as changing the slope angles, and adjusting the tonal balance. We have also introduced a series network to control the tweeter driver units' natural resonance frequency at 700Hz. There are now 16 crossover components per channel, all of which have been chosen for both their physical, electrical, and just as importantly their alchemical characteristics.

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What are the materials of the cabinet, stand and spikes – is there any acoustic advantage to these choices?

As we have outlined above, every aspect of the speaker has been considered and selected based on listening to music programme. The cabinet is a fundamentally important part of this; five sides of the carcass are constructed from a high specification particle board with a strictly selected density; something that we took many prototype iterations to select. It has excellent energy transmission qualities that neither stifle nor exaggerate the tonal and dynamic behaviour of the drivers. We balance this with an MR-MDF rear baffle to provide a degree of differential damping. The black plinth is made from the same material as the main carcass substrate and is sympathetically tuned to this end.

Is there anything in the cabinet to stabilise how it behaves?

The R25A cabinet has no internal bracing, which is quite unusual, and its resonance behaviour has been tuned to be alive yet benign. We use a small controlled quantity of wadding material for internal damping. The rear vent tube is un-damped.

Why use a veneer on the inside of the cabinet?

All cabinets should be built with a 'balancing veneer,' a time-honoured cabinet making practice which structurally stabilises the cabinet and stops it moving. It is quite common these days to use a thick specialist paper to do this, but we do not like the impact it has on the sound. Therefore we use a real wood veneer, and furthermore having listened to the marginal influences of the different wood veneer species, we have chosen to use Maple inside all of our cabinets as a balancing veneer. It is hard to explain quite why, but we preferred it over all other choices during the iterative development process and listening tests. As you can imagine, all of this is very expensive and time consuming with each decision leading to the requirement for a fresh prototype.

Essential cabinet specifications?

30-litre symmetrical D'Appolito design, except for the offset HF unit.

Details of the tweeter design?

It is a 26mm fabric soft dome, with an aluminium faceplate and a double magnet structure, with a copper rather than aluminium voice coil. It has a very fresh and open natural sound, possessing a sympathetic quality with our proprietary bass/mid drivers.

And the bass/mid drivers?

They are 17cm. These are exceptional drivers custom-made for us by Scanspeak. They deviate from the current design paradigm in most ways. They have a shallow curvilinear diaphragm, narrow diameter voice coil, aluminium former, a pressed steel basket, and foam suspension surround... Virtually none of these things are standard practice on today's high power handling 'studio monitor' type drivers. They have an uncanny ability to capture a musical event.

Why quote only basic measurement parameters?

It is very difficult to make any meaningful measurements of the low-frequency performance of loudspeakers below 200Hz, unless you use an anechoic chamber, and even then this will not tell you about the 'real world' holistic performance of the loudspeaker (although it will tell you where the minus 3dB point is, under anechoic conditions). Real world listening incorporates the reverberant field of the listening room, and it is how this reverberant field behaves in conjunction with direct radiated sound that is perhaps equally, if not more important, than that of the direct radiated energy. The way the speaker energises the room both on and off axis is the big deal. Also, a subjectively extended bass performance seems to be a characteristic of MTM (D'Appolito) loudspeaker designs generally, with in-room performance exceeding what you would expect simply from looking at the specification of the drivers on paper.

Which capacitors do we use?

There are ten capacitors in the crossover per channel; two in the high pass filter, five in the low pass filter and three in the LCR trap filter. We use three types, two of which are proprietary and the other is NOS military. It is a combination of technologies and chemistries.

What is the internal cable?

The internal wiring harness uses our own proprietary crystal oriented 2-core deep cryogenically treated copper. Again much prototyping was done with this, including our own preferred exotic speaker cable. However we found that our low inductance design offered the best balance and best fit with all of the other design decisions we had made for the loudspeaker.

Why is there no impedance linearisation?

We control the impedance peak at 700 Hz on the HF unit, with an LCR network but do not use any other impedance equalisation, as we have achieved subjectively perfect integration without having to resort to this.

Why is the phase integration so good?

Although objective measurements and techniques, and computer modelling are valuable tools in the early stages of loudspeaker development, they can only take you a short distance down the road. Designing the crossover by ear is the only way to make something that touches the human soul. Using complex, demanding and artistically substantial programme material, our subjective and iterative methodology allows us to 'dial-in' the integration by ear. Obviously, this requires a developed musical sensibility which the designer must use to make value judgements about what constitutes 'right'. When it is 'right,' there is a holistic integrity about all aspects of the performance, and as if by magic it transcends sound quality and becomes a musical telescope. In brief, you don't need to measure when something is right, you can hear it. It makes the music make sense in every way.

To mark 25 years since the launch of our original Auditorium loudspeaker, we've created the R25 Anniversary model.

Superficially identical to earlier generations, but fundamentally a different design, this is in all respects the most advanced Auditorium yet.

A distillation of everything we've learned in three decades, the R25A has a vivid see-through presentation, a coherence and freedom that lends fresh insight into all music genres.



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SPECIFICATIONS

- SENSITIVITY
94dB.
- NOMINAL IMPEDANCE
6 ohms.
- LOADING
Reflex port to rear of cabinet.
- POWER HANDLING
100 watts.
- FREQUENCY RESPONSE
35Hz to 22.5kHz
- CABINET DIMENSIONS
215 x 270 x 1030mm.
- GROSS WEIGHT PER CABINET
19 kg.

TECHNICAL SUMMARY

- High sensitivity, wide dispersion MTM driver topology 750-density hardwood composite enclosure
- Proprietary hand-wound air-core inductors, mechanically isolated crossover.
- Optimised crossover layout.
- Proprietary non-inductive wire-wound resistors.
- Proprietary Living Voice metallised polypropylene capacitors.
- Treble: Scanspeak 26mm dome tweeter 8ohm. Double ferrite magnet. Fabric dome diaphragm.
- Bass / Mid: Scanspeak 17cm doped paper-coned bass/mid drive units made specifically for Living Voice.
- Plinth: 215 x 270 x 140mm. Black textured finish.
- Woods and finish: Premium furniture grade book-matched natural veneers in Cherry. Walnut. Maple. Rosenut. Black Ash & Flat White.