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ATC SCM50SL

MARTIN COLLOMS GETS TO TACKLE ONE OF ATC'S LARGER LOUDSPEAKERS

The smaller ATC SCM11 was a notable review success (Vol10 No1), and we also assessed the SCM19, alongside powerful JL Audio subwoofers (Vol9 No3). Wondering how a larger model might fare in a feature review, we decided to try this £9,820 'Classic-series' SCM50 SL, a substantial three-way stand-mount that costs about nine times the smallest model we've tried.

ATC is a British brand with a turnover of about £6m. It was established in 1974 by ex-Goodmans engineer Bill Woodman who first turned his skills to a high power 12in (330mm) ATC bass driver for professional soundstage use. This attracted attention from other designers, and 15in and 9in versions followed. Woodman was obsessed with improving piano reproduction, and found the cone technology of the time unsatisfying. He therefore pioneered a high power 3in midrange dome, which still continues to this day in revised form.

Including the active and 'Tower-series' floorstanding variations, the ATC range currently comprises some 22 systems for hi-fi use (including centre-front and subwoofers for home cinema applications), and about as many again for the studio monitoring Pro market. All the drive units are designed and assembled in house (only the tweeter voice coils are made outside), and the staff of 37 also produces some electronics: two integrated amps, two pre-amps, a CD/DAC/pre-amp and numerous amplification packs for its active loudspeakers.

It is difficult to establish price comparisons with ATC loudspeakers. This review aims to find out whether this stand-mount three-way with a 234 mm (9in) bass driver is competitive at almost £10,000. The original specification SCM50 design has been around for some years now, but has recently undergone an extensive redesign to an SL-suffixed version. As before, an ASL active version of the domestic model may also be ordered, with ATC amplifiers and electronic crossovers. Larger versions (the SCM100 SL and SCM150 SL) are quite similar but with progressively larger enclosures and bass units (ie a 12in and a 15in driver respectively), plus professional versions too, such as the SCM50ASL Pro. All the active models use MOSFET amplification and electronic crossovers mounted on a backplate. As a trade purchase and without home dealer support the active matt-finished Pro version costs about £12,500 a pair (inc VAT, plus delivery).

The 'domestic' *SCM50 SL* is beautifully veneered and is relatively compact (30.4x42.5x71.7cm, WxDxH), each weighing some 41kg (90.5lb) per channel. Much of that is down to the massive magnets on the loudspeaker motors. The purchase price includes low 25cm box section steel frame/stands with adjustable 8mm steel spikes supplied for support, bringing the optimum mid-to-treble axis to seated ear height.

Such three-way designs always tend to cost more, in this case notably due to a particularly impressive ultra high power 75mm soft dome midrange unit (which is not as soft as might be expected as it is doped with special resins, to make it largely pistonic over its working range). It also has a linearising double suspension, and this works in conjunction with a cunning eddy current reducing magnet design, which also greatly reduces distortion. With its oversize 75mm voice-coil, the SM75-150S midrange unit can take substantial audio power and therefore avoid dynamic thermal compression.

The vertical-in-line driver formation enhances radiation across the lateral axes, while the extended mid response in the upper frequency range, coupled with good directivity, means that the workload on ATC's own design of 25mm soft dome tweeter is reduced. This driver also has a double suspension motor design, providing significantly lower distortion and reduced compression at higher powers, assisted by a low eddy current design neodymium magnet.

The bass driver edges towards a 9-incher, and is equipped with a massive long throw, low eddy current motor. It's built on a generous 3in (75mm) centre pole, with the well respected short-coil/long-gap geometry. The essentially pistonic cone is fabricated from a fibre and resin composite, heavily doped and damped and fitted with a massive reinforcing centre dome. This driver is reflex-loaded by a generous 75mm port with a well-radiused aperture (reducing wind noise); I didn't hear this port 'working' even under high powers.

Built in mirror pairs, the mid and treble units are offset on the front panel to help mitigate edge diffraction. While the customer can choose the orientation, it is usual to have the narrower front panel sections inboard, as this tends to sharpen stereo image focus. The timber frame grille fits

neatly over the projecting front driver panel, for a desirably low diffraction behaviour. The grille frame is slotted laterally to moderate residual grille frame reflection effects at the enclosure edge.

The real wood veneer choices include Black Ash, Cherry, Maple, Oak, Pippy Oak, Rosewood and Walnut. The ATC crossover uses in-house air-core inductors. Nominal crossover frequencies are 380Hz and 4kHz while the midrange unit's terminal impedance is fully compensated to obtain correct alignment. Third-order filtering is chosen for the high frequency section, which should also increase power handling. The enclosure is very rigidly built of 18mm MDF, with 6mm bitumastic damping over central regions. A generous six year warranty is included.

ATC's Ben Lilly explained that the Far East market had demanded fitting tri-wire terminals, which in my view might impair potential performance. The standard electrical connection comprises multiple metal linking straps finished in matt grey plating, which are then daisy-chained. If not carefully and very tightly installed these can make for unreliable connections. I placed one of these strap links on the test bench measuring the contact resistance of an inch strip with pointed probes and even with significant force I obtained varying results in the 0.25ohm range. (The nickel-plated probes that I used, even if lightly touched together, gave a much lower 0.05ohm value on this meter.)

Furthermore, the shoulders of the 4mm apertures on the removable screw caps are sharply radiused, making plug insertion difficult, and a larger spade terminal jaw size is required to clear the oversize posts. If not done up really tightly these connections may be imperfect as even a moderately tight install will result in attenuated or even missing driver outputs (which initially happened during our tests). Finally, the fine knurling on the connectors might be aesthetically pleasing but it means poor finger grip, especially as they are too tightly grouped. Even when well tightened I compared the sound quality before and after substituting wire jumpers: an unmistakable metallic sheen and extra crispness and projection in the high treble was then dispelled, and image depth improved. I make no apology for discarding the supplied hardware and making up a soldered, non-daisy-chained short wire harness to connect everything together. (A dealer should be able to help here.)

Quoted at 85dB/W sensitivity, this is not a high efficiency design. The manufacturer suggests 100 – 1500W amplifier power (on music programme of course), with plenty of confidence in the peak programme rating of what is essentially a high power studio monitor. The speakers were spaced around 0.4 – 0.8m from the wall, with the tweeters in-board and with a mild toe-in, sufficient just to bring the inner side panels into view. At this point the stereo image takes on improved focus and depth as the residual effect of diffraction is thus minimised. All this effort proved worthwhile as this is a fine loudspeaker of startling dynamic range with great clarity and excellent resolution. While fairly compact, it will drive larger rooms with little effort, preferably with at least 250W/ch of amplifier power available.

The Review System

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

Sound Quality

As supplied the sound was impressive, dynamic and powerful, with a desirably fast and crisp bass, but also with a mild and somewhat detached 'chromium' sheen to the upper treble. Deleting the supplied metal terminal jumpers and substituting bare wires fixed the sheen, the speakers then had very natural perspectives, sounding transparent into a satisfyingly deep soundstage. The sheer power and dynamic range on tap belied their relatively compact dimensions. Leaner in the bass than many famous name examples the initially dry bass may be brought into balance by setting the distance to the wall behind the enclosures (which for me was 0.6m) whereby a fine overall tonal balance was achieved, without boom or bloat. It struck me that a good partner for this loudspeaker would be a pair of VAC valve monoblocks. As it was, the available Naim NAP500DR drove this loudspeaker very well.

The agile bass helped the perception of good timing: more like a sealed box than a reflex, rather as the designer intended. Singing voice was rendered clearly, expressively and articulately, not favouring male over female. All were nicely placed in the mix, with neutral image perspectives. Focus was very good rather than excellent, countered by fine image stability with complex material. And it did not hold back on conveying the deep space found on recordings possessing extended reverberation.

The inherent neutrality enabled all kinds of material to express itself, from jazz (both forceful and relaxed examples) to heavy rock such as classic Hendrix, where you were brought almost to the front of the audience at high sound levels. The more modern Keith Richards' Main Offender sounded like we were present in the monitoring room, it was so punchy and immediate.

The joins between the three drivers were aurally seamless, and one really could not hear the crossovers working. I admired the evenhanded performance on so many different kinds of music and recording methods, and thus became fully aware of its studio monitoring pedigree: a loudspeaker which aims to tell the truth with minimal embellishment. The low distortion and smooth response also confers desirably low listening fatigue. Timing was rated good to very good on nearly all the material tried, placing the speaker well ahead of the industry average. It also performed very well on classical, with especially good piano reproduction. I suppose its great virtue was the way it became acoustically unobtrusive, allowing the wide range of music programme we sampled to tell their individual stories.

Conclusions

This ATC three-way generated powerful, tuneful and believably accurate sound images. Despite reasonably compact stand-mount proportions, it had fine bass with extension, tune playing and attack, a very neutral and well integrated midrange, and a sweet, detailed and natural high frequencies. Rather more powerful than its modest proportions might indicate, this fine design delivers stereo images on a grand scale, and conveys much of the character and detail in fine recordings. It hits the audio excellence level for its sheer all round ability – not least the massive power handling and the resulting dynamic range.

Lab Report

The loudspeakers were very well matched, left to right, as one would hope from its studio monitor pedigree. The measured sensitivity exceeded the 85dB/W specification by 0.5dB, which is below the industry average of about 87.5dB/W. Conversely this is an easy-to-drive 8ohm design, rather than the current-hungry 4ohm impedance often found among modern designs. One of the larger valve power amplifiers could therefore drive this loudspeaker, in addition to many solid state models.

The exacting claimed frequency response of 70Hz – 17kHz ±2dB is actually very close to our measured 60Hz – 25kHz -1.5, +2.5dB. The grille was largely non-invasive, and while attenuating the output above 2kHz by almost 1.5dB, it actually smoothed the frequency response by reducing the mild enclosure diffraction effect (a 2dB feature seen otherwise at 4kHz, resulting from the step at the enclosure edges). You can hear the effect of the grille, and then take your pick.

The bass is desirably over-damped, to deliver a near flat response when boundary and room gain is taken into account. The numeric figures are flat to 50 Hz -3dB, but powerful, in-room bass is actually achieved down to 35Hz. Both timbre and tonal balance are essentially neutral, though the above-axis output has a narrow dip at the upper crossover frequency (3.8kHz). However, hardly any loss is seen below axis, which is ideal.

As the array of third octave averaged curves show, the black trace for 10-15deg off-axis output is best, as indicated by the designer, and measures a fine ±2dB, 60Hz – 20kHz. It is a little bright directly on-axis, though the grille will shave a bit off when fitted. Despite the significant size, the 30 degree lateral output is almost as good as the on-axis trace, as is the 45 degree response. Only by 60 degrees laterally off-axis does this enclosure begin to become directive at higher frequencies.

A fine in-room averaged response confirms the

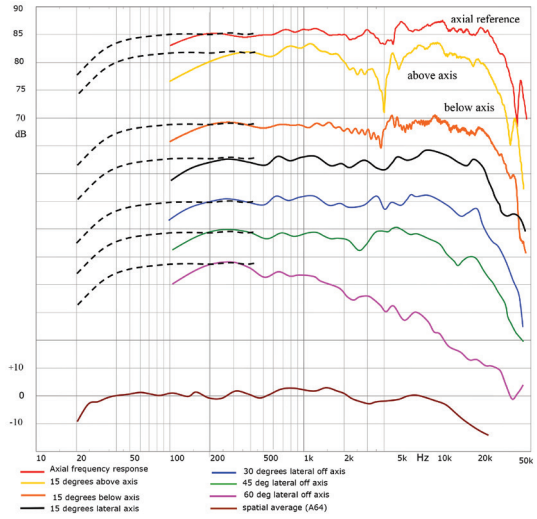
slightly dry low bass, the neutral lower mid and the mildly forward upper mid, with good treble integration extending to 12kHz.

The impedance was very favourable: quite stable and close to 8ohms overall, it's a relatively easy load for amplifiers and cables. The lowest value was 5.5ohms; the average was 8ohms; phase angles were moderate. The net result should suit all types of cable and amplifier.

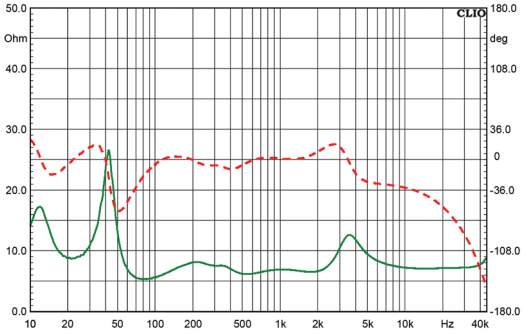
Some moderate resonance decay is visible later on in the impulse response, as may be seen from the analysed waterfall rendering, but the early impulse response is very fine with very good phase integration, indicating clean, neutral transients.

Special driver motors are said to help control distortion, and a number of our measurements tend to confirm this. Hammering the tweeter at 5kHz, for 1W the distortion was just 0.033% second harmonic and 0.015% third. When cranked up to 95dB, it was still as little as 0.03% and 0.02% respectively, which is a top class result. At a programme frequency power maximum of 600Hz, 0.04% of second harmonic, 0.01% of third harmonic was found for 85dB, and for 95dB spl, just 0.1% of second harmonic and 0.03% of third harmonic respectively. Even at 100Hz, where distortion is usually higher, 85dB spl gave 0.1% of second harmonic and 0.03% of third harmonic: fine figures that will be quite inaudible. The readings were naturally poorer in the deep bass but even here it showed excellent power handling with solid control down to 30Hz. At 85dB spl, 35Hz it measured a fine 2.5% for second harmonic, 1.2% for third harmonic, which will also be inaudible. It could sustain a massive 25V at a very low 28Hz before overload, which is an input of 100W continuous sinewave into this load impedance, and therefore a most impressive result.

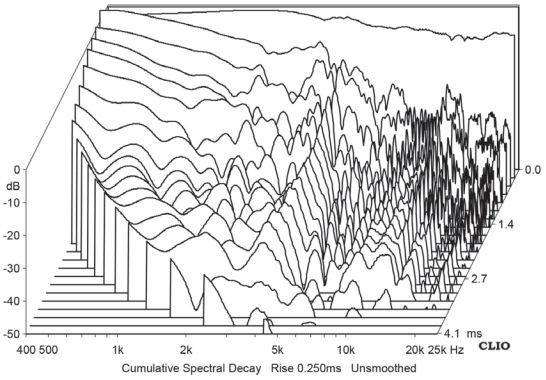
Frequency Responses 85.5dB/W, 8 ohm sensitivity



Load Impedance and Phase (red)



Waterfall analysis of energy decay with frequency



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Loudspeaker Measured Test Results

Make	ATC
Country	manufactured in the UK
Model	SCM50 SL Moving-coil, 3-way, stand-mount, reflex loaded
Price (per pair)	£9,820
Finishes	Veneered: Black Ash, Cherry, Maple, Oak, Rosewood and Walnut
Size (HxWxD)	71.7x30.4x42.5cm
Weight	41kg (90.5lb)
Type	3-way critically tuned reflex 23.4cm pulp cone LF, 75 mm dome MF, 25mm silk dome HF. 75mm front reflex port
Sensitivity for 2.83V	85.5dB @ 1m (2.83V) *(measured)*
Amplifier loading	Min 5.5ohms: 8ohms specification *(agreed)*
Frequency response axial	60Hz – 25kHz ±2.0 dB *(listener axis; very good)*
Frequency response off- axis	see graphs and in-room response *(very good)*
Bass extension	36Hz -6dB; 31Hz -6dB in-room *(very good)*
Max loudness, in-room	110dBA for a stereo pair *(will drive large rooms)*
Power rating (max, min)	75W-1000W *(high power rating)*
Placement	Stand-mounted, free space 0.3 – 0.8m from wall
Price	£9,820 (inc stands)

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