

Graham Audio LS5/9 loudspeakers

The studio in your living room

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If you trace the history of loudspeaker designers and manufacturers, for many, you will end up at one place: the Research Department of the British Broadcasting Corporation. Brands such as Spendor, Harbeth, Rogers, PMC and Stirling Broadcast draw on years of research conducted by the BBC. To this list we can now add Graham Audio, a UK company active in the professional audio field for the past twenty years, who recently turned to the objective of reviving legendary «BBC» speakers. The BBC never manufactured speakers but granted licenses to build them according to their specifications. Graham Audio obtained the coveted license for the LS5/9, their first speaker and one which in many ways stands clearly apart from its peers.

A BRIEF TRIP BACK IN TIME

Why do so many loudspeaker manufacturers still refer to the research and the specifications of the BBC? A BBC programme had to meet high standards of music programming and sound quality. To achieve this, it needed monitor speakers that enabled recording engineers to precisely position their microphones and properly judge resulting programme quality. When the BBC hired Dudley Harwood in 1948 (who would later found Harbeth) and L.E.D. Shorter, one of their first mandates was to review the speakers available on the market. Their conclusion was not encouraging, as none of the loudspeakers evaluated met their requirements.

As a result, the BBC conducted what is probably the most comprehensive and lengthy research programme into the design and performance of loudspeaker components. Everything was examined, from drivers to crossovers to cone materials to enclosures, using measurements and critical listening. The objective was to identify criteria that would ensure accurate reproduction in both professional and domestic environments. These criteria included a cabinet volume sufficient to produce an acceptable level of low-frequency response, the ability to reproduce high sound pressure levels to meet the demands of «pop» and «serious» music, and the ability to create a highly accurate stereo image. In addition, there had to be a high level of consistency from speaker to speaker, permitting in-field replacement of a damaged unit while ensuring accurate matching.

REVIVING A LEGEND

For the founders of Audio Graham, the project to resurrect a speaker dating back more than thirty years was undertaken not out of nostalgia, but out of admiration for this design. The involvement of speaker guru Derek Hughes in the two-year project was crucial to its success. A key figure at the BBC Research department at its peak, Derek is also the son of Spencer and Dorothy Hughes, the founders of Spendor.

Hand built in South Devon in the UK, the LS5/9 is a two-way bass-reflex design. Above all, a BBC speaker has to faithfully reproduce the human voice, located in the critical mid-range frequencies. A speaker designer can create the midrange using a dedicated driver, thus moving the frequency crossover points outside of the range where the

human ear is most sensitive - with a tweeter and a woofer completing the audible spectrum - or he can carefully match a mid-bass driver to a tweeter. The BBC engineers preferred the latter approach because of its greater simplicity, involving a single crossover. Despite its apparent simplicity, creating a crossover that is completely transparent to the ear in the transition zone between a mid-bass driver and a tweeter is a fine art. Apart from separating the frequencies for each driver, the 24-element crossover in the LS5/9 is designed to linearize the response curve of the final assembled speaker, compensating for cabinet shape and driver location.

In its original design, the BBC had specified a 34 mm (1.3 inch) soft-dome tweeter from the French manufacturer Audax. As luck would have it, the same tweeter is still in production by Audax, but with enhancements including an extended frequency response in the treble (-6 dB at 20 kHz). This tweeter also covers a portion of the midrange down to 800 Hz, with a sensitivity of 93 dB, allowing the transition zone to be set lower and the use of a larger mid-bass driver, in this case a 200 mm (7.9 in.) unit custom manufactured by Volt. The sensitivity of the speaker is 86.5 dB at 1 meter (2,83V) at a nominal impedance of 8 ohms, with a frequency response extending from 50Hz to 16kHz at +/- 3dB. Graham Audio recommends an amplifier providing an output of 50 to 200 watts.

To ensure exact matching between the two speakers of each pair, Graham Audio measures and characterizes each driver prior to building the crossover. Note that maintaining phase coherence by the crossover is a primary objective for the BBC, as it enables pinpoint positioning of microphones during recording. The tradition is continued here, but using highest quality components including ferrite-core inductors with high saturation thresholds for the mid-bass driver, air-cored treble inductors and polypropylene capacitors. Derek Hughes worked closely with Volt, a British driver manufacturer, to create a 200 mm mid-bass driver similar to the original version made by Rogers, but without the original's longevity problems. The new driver uses the same material for the cone, a transparent polypropylene baptised Diaphnatone. Improvements have been made to ensure that the characteristics of the drivers remain stable over time. Cabinet construction continues the BBC tradition of thin panels, in this case birch plywood damped with sections of medium-density rockwool covered with fabric, to break up and attenuate resonances transmitted by the speaker panels.

Unlike most monitor speakers, the Graham Audio LS5/9s are designed for critical listening with the grilles in place. It is very simple to remove them because they are retained by magnets hidden under the wood veneer. On the front panel of the enclosure is a terminal for adjusting the tweeter level by plus or minus one decibel. This adjustment is made by the manufacturer to compensate for differences between pairs of tweeters and does not need adjustment by the user. At the rear, a single pair of terminals accepts 4mm plugs, spades or denuded wire. Following assembly, each speaker undergoes a series of measurements and listening tests before being signed

off for sale; measurement data are retained for future reference. The finish of the speakers and their packaging are exemplary; everything exudes quality and attention to detail. As the speakers were voiced with their dedicated stands, Graham Audio recommends their use to obtain optimal performance from the LS5/9. The stands are of the open-frame type and firmly support the four corners of the speaker base, preventing movement in any axis. The absence of a column-type stand under the enclosure is an integral part of the design, allowing the speaker to radiate in all directions without reflections. The LS5/9 is optimized to provide the most uniform response when the mid-bass driver is positioned at ear level. To achieve this with the dedicated stands, the speaker can be inverted, and the grill simply turned around and reattached.



LISTENING

As in the recording studio

On their stands with their grilles in place, the LS5/9s were connected to a Naim SuperNait2 amplifier and set up two feet from the back wall and about a foot from the side walls. I pointed the speakers directly at the listening position and began with Leonard Cohen's *Live in London*. I immediately grasped the acoustic imaging precision of these speakers, as Leonard's voice appeared in front of me in a vertical strip about six inches wide! The tone of his voice was fine, but the narrow image was disconcerting to say the least. The solution was simple: turn the speakers slightly outward so that the inner side walls were partially

visible. With the acoustic image restored to natural proportions, listening continued in a most captivating way, as these speakers are among the most accurate that I have experienced. I was not expecting it, believing wrongly that the sharp edges of the speaker cabinets and positioning of the mid-bass driver behind the front panel could only impair imaging. It was the first lesson in humility. Instead, the LS5/9s set up a broad, deep and extremely stable image within which instruments, voices and sounds are placed with amazing precision. They are an eloquent testimony to the thoroughness of the BBC's research and the listening experience of its engineers.

Precise sound imaging certainly helps to immerse the listener in the music, but to stay there, clarity, rhythm, truth of timbre, dynamics and listening ease have to be present. On these points, I have nothing but praise, for where many monitor speakers present detail by an emphasis in the treble, the LS5/9s present music in a suave manner that invites prolonged listening. The speakers draw attention to the music instead of forcing it onto the listener.

The great strength and the heart of these speakers is their midrange, which is spacious, articulate and eminently natural. The integration between the tweeter and the mid-bass driver is excellent, as it is impossible to spot the junction between the two. From its wide midrange palette the LS5/9s deliver detail and timbre in a way that leaves no doubt about the nature of any instrument, voice or sound. Micro and macrodynamics are faithful to the recording, effectively conveying the subtleties, depths and impact of musical performances.

Better sound for a better picture

As an illustration of the LS5/9s' accuracy, they were used throughout the review in a stereo system which also serves for watching movies, in 2.1 mode. Over the years I have lived with many pairs of speakers in this system, but voices in movie soundtracks were never completely to my taste, often leading me to consider adding a centre channel and the necessary electronics. The Graham LS5/9s quickly solved that problem. Due to their tremendous precision, voices emerge directly from the screen at the actors' positions. I've been listening to the LS5/9s for two months now and every night, for an hour or two with our favourite series and movies on Netflix, the LS5/9s disappear completely as they immerse us into soundtracks, literally transforming the viewing experience.

To each room their speakers

The LS5/9s spent most of the review period in a modest size room (11'W x 14'D x 7.5'H) firing down the length of the room. The match with the room was successful as I never noticed resonances intruding on the listening. This was not the case when I tried them in a large open living room measuring 25'W x 25'L x 14'H. At high volumes, resonances from the side walls sometimes became audible, around 150-200 Hz, when listening off axis. At reasonable volumes however, this phenomenon was not intrusive. If you are looking for speakers for an open plan room in which listening is not exclusively on the main axis of the speakers, be on the loo-

kout for this phenomenon which, in fairness, is not limited to the Gramhams, being a characteristic of most thin walled «BBC» speakers.

Only for classical and jazz?

On reading some of the existing reviews of the Graham LS5/9s, one could be led to believe that these speakers are ideal for classical and jazz, but not suited for more muscular music such as rock or electronica, the latter built on a foundation of deep bass. Let's have a listen.

I began with classical music, in this case Vivaldi's *La Stravaganza* and the «Concerto for violins, strings and continuo, in B-flat major.» From the first track, the energy and enthusiasm of the Allegro interpreted by the musicians of l'Arte dei Suonatori were well presented, transporting me into the music as if I were at the concert. The clarity and nuance of the LS5/9s provide the freedom to focus attention on one musician, then another, or simply follow the movement of the whole. In the «Adagio» Rachel Podger develops the work with intensity into a deeply moving performance that the LS5/9s revealed with ease. Picking up the tempo with the «Allegro», the LS5/9s neatly captured the lively and catchy playing, to the point where I felt in complete harmony with the musicians. As you might guess, the two discs of the twelve violin concertos just had to be heard in full, because here, as in every listening session with the LS5/9s, they quickly made me forget that I was supposed to be evaluating them. It was far more interesting to follow the musicians than to try to assess the sound. The same observations applied to other classical albums and even the toughest listening tests, such as *Les Vêpres du jour de Pâques* by the Ensemble Organum conducted by Marcel Peres, which passed without the usual confusion in the voices and in the polyphony.

Moving to jazz, namely Diana Krall putting an end to romantic relationships in «I'm Thru With Love», sadness has never been so beautiful... but then, if you go far enough into an emotion, even sadness, isn't there always a certain beauty, a deep connection with our humanity? I digress, but as you can see, the LS5/9s can take the listener quite far, even to Norwegian jazz, namely Nils Petter Molvaer. Having attended his concert in Montreal a few years ago, I religiously buy his albums. His latest, *Switch*, explores some unusual sonic landscapes, to say the least. The drum strikes that open the track «The Kit» were not only reproduced with impact and authority, but the LS5/9s drew a detailed 3D image of the drum kit. The front and middle of my listening room became a wall of sound that Molvæer pierced with his trumpet and painted with samples of electronic sounds, his trademarks. The synthesized bass that provides the essential foundation for this grandiose and ominous music dug deep and growled like I expected. Are we still in jazz or is this electronic music? It is debatable, but one thing is certain, the LS5/9s are amply able to do justice to these forms of music. Ideal for classical and jazz only? I think not, but let's listen a little more deeply.

Recoil is the name given by Alan Wilder (formerly of Depeche Mode) to his musical project that explores shade

and darkness, effectively combining electronic music, voice and soundtrack effects. The title of his album *Unsound Methods* sets the tone. The Graham LS5/9s effectively convey the dark and malevolent atmosphere of this record and its passages of sheer terror. The track «Luscious Apparatus» is usually a difficult listen, because if the resolution is not optimal, listening can quickly become unbearable. But here, the mix of electronic sounds and bass synths is kept in balance, thanks to the resolving power of the LS5/9s, and at last the words become clear. The story is bizarre, twisted and ultimately violent. Why did I choose this disc? To demonstrate the versatility of the Graham speakers, which is always a good indicator of a speaker's quality. I do not subscribe to the belief that a speaker can only be ideal for one style of music, but not for another. If this is the case, the speaker is compromised, in my opinion. While the infrabass become discrete, to criticize them on this aspect would completely miss their great strength in rendering the midrange.

For me, the Graham LS5/9s are a reference point for midrange openness and clarity in a two-way speaker. My other references are the three-way speakers designed by Jean Maurer, where a single driver is dedicated to the midrange. As for the LS5/9s, their resolution of instrumental timbre and their temporal resolution (absence of phase errors) unite to deliver all the information the brain needs to instantly grasp the identity each of instrument, sound or voice, and the intent behind them. But back to *Unsound Methods*. As I listen to the last track «Shunt,» the intensity is gradually ramped up until the four-minute mark where Alan Wilder launches a vicious loop increasing the tension notch by notch. Listening becomes more and more powerful and exhilarating as Wilder insists and hammers the beat. It's draining, exhausting and completely therapeutic. Continuing with Anders Trentemøller's *The Trentemøller Chronicles*, about one minute thirty into the track, «Kink», the artist introduces a syncopated beat that emerges directly from the walls on my right and my left, as if I had lateral speakers, which I don't. It's amazing and a clear demonstration of the phase precision of the LS5/9s and their ability to create an image true to the definition of stereo: three-dimensional.

Relaxation is called for and what could be more appropriate than to end with the human voice, in the person of Daniel Taylor interpreting the aria «Erbarme dich, mein Gott» from the Passion of St. Matthew from the album *The Voice of Bach*. The power of this rare and magnificent countertenor voice is rendered masterfully by the LS5/9s. The track ends, leaving me not only serene, composed and utterly captivated by the beauty of this ancient music and the talent of Daniel Taylor, but with a renewed appreciation of the BBC's emphasis on correctly reproducing the human voice. The voice covers much of the midrange and represents that which the human ear knows best.

VERDICT

It is sobering to realize just how right the BBC engineers had designed their speakers thirty years ago. Reborn and refined here with the expert guidance of Derek Hughes,

Graham Audio's LS5/9 resets the bar for two-way speakers.

Where many monitor speakers assail you with a flood of details, the LS5/9 takes a more serene approach where music is presented naturally, less insistently, inviting listening and not forcing it on the listener. The acoustic imaging of these speakers is of reference quality as they create a wide and deep sonic landscape in which instrumental timbre is expressed unspoilt. No nuance of the musical performance escapes the LS5/9s, and in home theatre mode, they can cast serious doubt on the relevance of a centre speaker.

Reproduction of bass frequencies is well defined with a light touch of warmth, giving a convincing foundation for music. Close your eyes and it's easy to imagine that the LS5/9s are much larger than their modest dimensions (28 x 27.5 x 46 cm). While the infrabass becomes discrete, reproduction of this portion of the spectrum is not the their *raison d'être*. Focus on the midrange however, where the music lives, and the Graham Audio LS5/9s will reveal new levels of nuance in your recordings and open your musical horizons.

Each type of speaker offers a different perspective on music. The LS5/9s strike a unique balance between detail and emotion, where the latter passes first through the head before deploying, in the true tradition of British reserve. Personally, I find this perspective fascinating as it offers me a powerful tool with which to evaluate high-fidelity audio components. For that reason, the LS5/9s will stay in my system as reference speakers.

The price of the LS5/9s, which includes a substantial licensing fee that Graham Audio pays to the BBC for each pair of speakers, giving them the right to use the LS5/9 designation, may seem higher than some competitors. I urge you to make the comparison because the LS5/9s really do stand out. If the past is the best guarantee of the future, then the LS5/9 should remain a reference for at least another thirty years ; the expression "Buy once, buy for life" applies fully here.

ASSOCIATED EQUIPMENT

- Digital sources: Naim converter (nDAC), 16/44 WAV files on USB key; Naim CDX CD player with Teddy Pardo XPS power supply
- Interconnect cable: Naim SuperLumina



- Amplifier: Naim Supernait2
- Speaker cables: BIS Audio Vivat
- Speakers: Amphion Argon 3
- Power bar: BIS Audio PowerBIS Cryo
- Power cables: Ice Age Audio Copper/Copper for the Supernait2, BIS Audio AC20 for the Naim converter and CDX CD player

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LS5/9, Cherry finish: \$8,499 pair

LS5/9, Rosewood finish: \$8,999 pair

LS5/9 supports: \$799

Guarantee: 5 years

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