



# Harbeth Super HL5*plus*

## LOUDSPEAKERS

**T**his Harbeth Super HL5*plus* is the latest generation of Dudley Harwood's original HL-Monitor, so there's more than 39 years of history inherent in its design. Harbeth was famously established by Hugh Dudley Harwood who, when he was working as head of the engineering for the British Broadcasting Corporation's research department, patented, in his own name, the use of polypropylene as a cone material (UK Patent 1563511). In order to commercialise his patent, Harwood retired from the BBC and established Harbeth in 1977. His first speaker (originally called the 'HL Monitor', but now retrospectively identified as the 'HL1'—see breakout box titled 'History of the Super HL*plus*') was the first loudspeaker in the world to use a polypropylene cone.

(And just in case you were wondering, the 'Beth' in Harbeth is there because Harwood's wife's name was Elizabeth.)

Harbeth has since 1989 been solely owned by Alan A. Shaw, who is also its sole speaker designer. Despite this, Shaw states that all his designs are still based on the BBC's 'loud-speaker legacy', saying: '*I have concentrated my entire efforts on progressive detail improvements, such as the Radial cone material.*' This may very well be the reason there are only five (count em!) speakers in Harbeth's home audio range, of which the Super HL5*plus* reviewed here is just one model removed from the top-of-the-line Model 40.2 Domestic. (Harbeth does build three other models, but they're studio monitors intended for professional applications.)

### THE EQUIPMENT

Happy memories. Those are what flooded into my mind the very second I removed the first of the pair of Harbeth Super HL5*plus* speakers from its cardboard packaging.

When I saw the method that had been used to construct the cabinet I was instantly transported back to the very first pair of loudspeakers I ever built, 'way back in the 70s, using the standard construction method of the day that was employed by all DIY speaker-builders, whose only available tools back then were circular saws and power drills, that method being to fix 25×25mm maple battens to the front and rear of their top, bottom and side panels then screw the front baffle and rear panel to those battens, using dozens of wood screws.

The happy memories continued to flood in when I looked at the dimensions of the Super HL5*plus*, which seemed spookily similar to those I used for my own very first speaker cabinet. But then I realised that I had most likely based the dimensions of my own cabinet on one of BBC's designs in the 70s because that august outfit was the most famous speaker design outfit in the world at the time, with various famous British manufacturers producing the BBC's designs under licence: companies such as KEF, Spondor, Goodmans, Rogers, Celestion and Chartwell.

Even the driver layout of the Super HL5*plus* looked eerily similar to the one I used on my first speaker. However whereas I used a Celestion bass driver, a Philips mid-range driver and a Celestion HF-1300 tweeter, Harbeth uses in the Super HL5*plus* a bass/midrange driver it builds itself, in-house at its headquarters in Lindfield, UK, as well as a tweeter and super-tweeter it has custom-made for it by Norwegian speaker specialist SEAS. (Strangely enough, I also was unhappy with the high-frequency performance of my HF-1300 and later added a Scan-Speak D2008 as a super-tweeter, turning my original three-way design into a four-way design... and there was certainly plenty of room on the front baffle to do this!).

Although the Super HL5*plus*'s cabinet may be constructed the same way I built mine, there is absolutely no similarity when it comes to cabinet finish, because whereas I used raw 19mm particleboard, Harbeth uses 8mm HDF that's been veneered on both sides with—at least on my review loaner—a beautiful grain-matched light-coloured matte-finish Eucalyptus veneer made from real wood. The colour is so light and 'airy-looking' that I would have believed you if you'd told me they'd been designed and built in Scandinavia, whereas the reality is that they're made in a small facility in a mediaeval village in West Sussex, England. As with all wood-finished Harbeth cabinets the Eucalyptus veneer is finished with a thin coat of cellulose lacquer. The company says this coating 'should prevent fluids from penetrating into the veneer', and can be kept clean using only a damp cloth. However, I'd still recommend you don't allow anyone to place anything at all on top of the loudspeakers!

I suspect that the other veneer finishes available from Harbeth (those finishes being Cherry, Black Ash, Maple, Rosewood and something called 'Tiger Ebony') may make these speakers look more 'conventional', but since I have not seen these other veneers in the flesh, I am not really equipped to pass comment. And although there's certainly

an abundance of screws securing both the front baffle and the rear panel to the carcass, Harbeth is at least using chemically coated black steel ones on the front panel (so they're not visible through the grille-cloth). The screws holding the rear panel on are made from brass (exactly what I used for my own creations!).

The Harbeth Super HL5*plus*'s grille has been very ingeniously designed. It has a flat steel frame (used edge-out), over which the grille-cloth is stretched. This steel frame then slides entirely inside a narrow channel cut into the periphery of the front baffle, completely eliminating the possibility of reflections from the frame and at the same time giving a very clean finish. Without the grilles fitted, I'd have to call the look of the Harbeth Super HL5*plus* 'intriguingly industrial', but once the grilles are fitted, I think the speakers look very attractive indeed.

The bass/midrange driver is the second generation of Harbeth's unique 'radial' design. According to information posted on Harbeth's UK website, the company won a British Government Science & Engineering Research Council (SERC) research grant in 1990 to examine alternative material solutions to using polypropylene, during which project (using research partners from the University of Sussex) the company invented and patented its own plastic formulation, which it called 'Radial' [an acronym derived from the words 'Research And Development In Advanced Loudspeakers'].

Radial is apparently more than just an acronym, however, because the lines along which the cone exhibits its greatest stiffness and efficiency are radial, according to Harbeth. And unlike ordinary polypropylene, the polymeric composite of which Radial is comprised is able to be injection-moulded, as well as vacuum-formed, and it's the former process Harbeth says produces the best sonic performance. The formula for Radial has recently undergone a small change, so new Harbeth drivers are now specified as having 'Radial-2' cones to indicate the use of the newer polymeric composite.

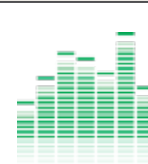
The cone in the Super HL5*plus* is rated by Harbeth as being '8-inches' (203.2mm) in diameter but, as you can see from the photograph accompanying this review, the diameter will vary depending on where you measure it, since the driver chassis is not circular. However, no matter where I measured, I could find no dimension that matched the one specified by Harbeth. Measured across the rounded corners, the driver is 237mm in diameter. Across the flats, it's 210mm. Measured from

one mounting hole to another (the one most often used by driver manufacturers themselves to specify driver diameter) the distance is 218mm. So I have no idea where Harbeth gets its '8-inch' specification. However the most important diameter for any bass driver (or bass/midrange driver, in this case) is the Thiele/Small diameter, which is what's used by designers to determine the volume of the cabinet and the size and length of the bass reflex port, and for the Super HL5*plus*, that diameter is 164mm. This gives a driver area (Sd) of 212cm<sup>2</sup>.

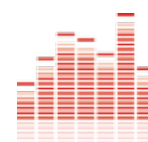
The driver's suspension (aka 'roll surround') is made from rubber, so it will be much longer-lived than if it were made from foam. (Here in Australia, roll surrounds made from foam start disintegrating after about

## HARBETH SUPER HL5*plus* LOUDSPEAKERS

**Brand:** Harbeth  
**Model:** Super HL5*plus*  
**Category:** Standmount Loudspeakers  
**RRP:** \$6,890 per pair  
**Warranty:** Two Years  
**Distributor:** Audio Magic Pty Ltd  
**Address:** 23/22 French Avenue  
 Northcote VIC 3070  
 ☎ (03) 9489 5122  
 ✉ info@audiomagic.com.au  
 🌐 www.audiomagic.com.au



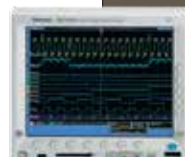
- 'Right' sound
- Bi-wirable



- Need for stands
- Short warranty

## LAB REPORT

Readers interested in a full technical appraisal of the performance of the Harbeth Super HL5*plus* should continue on and read the LABORATORY REPORT published on page 26. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.



Lab Report on page 26

five years, primarily due to the high levels of ultraviolet radiation in the Antipodean atmosphere.) Neither is the roll surround a conventional geometry, in that it uses an ‘inverse’ roll, rather than the more usual one. The central dust-cap is also not conventional, being rather unusually-shaped: a shape that, according to Harbeth: ‘*is an evolution of a phase plug design used on the original HL-Compact some 30 odd years ago.*’

Harbeth works the Radial 2 bass/midrange driver very hard in the Super HL5*plus* design, because it handles not only the bass and the midrange, but also the lower treble, crossing over to the 25mm-diameter aluminium-domed tweeter at 3.3kHz. This tweeter’s dome is protected by a non-removable steel mesh. Positioned above this tweeter is a 20mm dome super-tweeter, this time *sans* any protective mesh, which augments the tweeter’s output, starting to operate at 12kHz. The bass reflex port lower-down on the front baffle is 68mm in diameter and 82mm in length. Unusually, at the inner end of the port, Harbeth has attached a 30mm-wide strip of soft acoustic foam that it rather cryptically says ‘*provides extra damping.*’

As with the top, bottom, sides and rear panel, the front baffle of the Super HL5*plus* is also made from 8mm-thick MDF that’s been veneered on both sides, and these thin panels are the reason you’ll find it very easy to lift these speakers onto their stands—each cabinet weighs only 15.8kg, despite measuring 635mm high, 322mm wide and 300mm deep (dimensions that give, according to Alan Shaw, the ‘classic BBC 2-cubic foot volume.’) The reason for the light-weight construction is that Harbeth says it controls resonances by tuning the different panels to different resonant frequencies, rather than trying to eliminate resonances by cross-bracing. So if you look inside the cabinet you’ll find there’s no cross-bracing at all (unless you count the fixing battens as cross-braces, which I guess they are). What you will find when you look inside are resonance-tuning devices (tar-like mats) on the various panels, plus small amounts of various damping materials.

Rather than being mounted on a terminal plate in the conventional manner, the Harbeth Super HL5*plus*’s four gold-plated speaker terminals (two for the high-frequency section and two for the bass/midrange driver) appear to be attached to the cabinet itself. They’re not, of course. In fact, the terminals plunge through the cabinet where they attach directly to the printed circuit board (PCB) holding the very complex (some would say ‘typically BBC’) crossover network. As you’d expect, all the components on the PCB are high quality, including the six ferrite-cored and single air-cored inductors (all well-spaced and cross-mounted to

avoid mutual interaction), twelve polypropylene capacitors and five resistors.

## IN USE AND LISTENING SESSIONS

Curiously, Harbeth does not make stands for its speakers. I can only assume this is also part of the BBC heritage, where the speakers were in most cases placed on wall-mounted brackets. (Note that they were not actually attached to the wall or to the brackets, just sitting on the angled brackets themselves.) This may suit you, and because of the front-firing bass reflex port, it’s certainly an option... but you may prefer to use stands.

Whatever method you use to support the speakers, you should be aware of two things. Firstly, my experience with the Super HL5*plus* was that for optimum performance, you’re going to have to make sure that the 25mm tweeters are either at your seated ear level, or that the cabinets are angled in such a way that the tweeters are aimed directly at your ears when you are in your usual listening

position. Secondly, you should not anchor the speaker to the stand using Blu-tac or any similar substance. With regard to this latter advice my experience was that doing so adversely affects the sound. The sound is somehow ‘more dynamic’ when the Super HL5*plus*’s cabinet is free to do its thing. I would imagine that ‘best’ performance would come about if the cabinet was floating in the air. Impossible of course, but I think the best practical solution would be to minimise the areas where the cabinet touches whatever is supporting it. Some experimentation with support devices might be useful. I could not find any information about this topic on Harbeth’s website, but since that site also serves as the home for the very active Harbeth User Group (HUG), I am sure the members of that group would be more than happy to tell you what works and what doesn’t... at least as concerns their own systems. In addition to having the tweeters at ear level, I also far preferred the sound when the speakers were toed-in so the sound-paths from the left and right speakers converged exactly at my listening (head) position, because I found that—in my room at least—this configuration delivered the best stereo imaging.

First impressions are always important, whether it’s people, companies or loudspeakers, and my first impression of the Harbeth Super HL5*plus* was that its sound was amazingly cohesive and stunningly real, very similar to what I hear from full-range designs (Lowther *et al*) but with none of the bass or treble limitations of full-range loudspeakers. It’s so stunningly real that although I will do so for the purpose of this review, it’s as if the bass, the midrange and the treble no longer exist as separate entities that need to be described as such, but you’re instead just listening to ‘music’—music that’s been freed from the normal transitions that must take place from a bass driver to a midrange driver to a tweeter.

The clarity and detail that are delivered across almost the entire spectrum in which musical instrument fundamentals occur is stunningly good. In hindsight, I realised that this is because almost this entire spectrum is being delivered by a single driver: that unique Radial-2 device. This means that whereas in most speakers’ tonal delivery will be altered whenever an instrument’s sound (or a person’s voice) transitions from one driver to the other, no such transition ever takes place with the Harbeth Super HL5*plus*, so the ‘tone’ of the sound will always be identical. But in addition to achieving this, Shaw has also achieved something else I would not have thought possible from such a driver, and that’s the perfect balance across the audio spectrum, so that all sounds are reproduced at the exact level they’re supposed to be at.



## HISTORY OF THE HARBETH SUPER HL5*plus*

The Harbeth Super HL5*plus* is the ninth generation of Dudley Harwood’s original BBC monitor, which for 39 years has been the company’s top-selling loudspeaker. The first four generations of the speaker (HL Monitor, HL Monitor Mk2, HL Monitor Mk3, and HL Monitor Mk4, were all designed and put into production entirely by Harwood. All models after the HL Monitor Mk4 were designed by Alan Shaw (pictured above). These models were the HL5, HL5ES, HL5ES-2, Super HL5 (since 2000) and the current Super HL5*plus*, which was released in 2014. The HL5, HL5ES and HL5ES-2 did not have a super tweeter. This was introduced with the launch of the Super HL5, hence the name. According to Shaw, the development of the latest Super HL5*plus* involved a complete bottom-up re-design of the crossover, and is the first HL model to use the latest-spec Radial 2 bass/midrange driver.



Well, perhaps not *quite* perfect: with some well-recorded music of a minimalist nature I fancied that I heard a very slight tinge of warmth to the sound across the lower mids (in the region of middle 'C') but this was not a forwardness in any way, just a tinge of warmth. It's also so slight that with most music it was impossible to detect, even when I was listening specifically for it. I am quite frankly amazed that Harbeth has been able to extract all this performance from this modestly-dimensioned Radial-2 bass/mid driver. No wonder they're keeping manufacturing 'in-house': I am sure Shaw does not want anyone else getting their hands on it... irrespective of whether it's protected by a patent or not.

From the very first album I played, the Harbeth Super HL5*plus*'s had me hooked... so hooked I listened to that same album three times in succession before moving on. That album was 'The Crying Game', by Michelle Nicolle. She's a massively talented jazz vocalist, and thanks to the Harbeths, I could very easily hear why. The track *The Crying Game* closes out with her scatting, accompanied by Geoff Hughes on acoustic guitar, and there are sounds that are barely audible, inflections that are just barely inflected and a beautiful sense of rhythm. Everything was rendered to perfection by the Harbeth HL5*plus*'s.

It only got better on the track *Something Good*, when Ian Collard's harmonica chimes in over Jex Searelaht's piano, after which Collard first solos a vocal then duets with Nicolle. The balance of the voices was an absolute joy to hear, and the way the Harbeths were able to separate the two completely different tonalities was miraculous. The Harbeth's high-frequency ability was brought to the fore when I heard the gently tapped cymbals that kick off Nicolle's version of Chaplin's *Smile*, then highlighted again by the way the percussion punctuated the song throughout, while all the while in the background was the accurately-reproduced sound of Hughes' guitar.

The same CD also revealed how accurately the Harbeths reproduced piano, as Nicolle reveals one of her other talents on the close-out track *Don't You Forget About Me*, accompanied by Nadje Noordhuis on flugelhorn. The breathy, sad tones created by Noordhuis's flugelhorn are captivating, either solo or when working against the piano's sound. It's also a fabulous version of *Don't You Forget...* my new favourite version in fact. Listen to this album and you'll understand why Nicolle was proclaimed 'Jazz Vocalist of the Year' in 2001, 2003 and 2004 and is rated by many jazz critics to be Australia's finest jazz singer.

The flugelhorn and the jazz reminded me of James Morrison, and I pulled out The Idea of North's album 'Evidence' which, although

it's mostly *a Capella*, does feature Morrison and flugelhorn on the track *But Not For Me*, and David Jones on drums on the title track *Evidence* (not to mention the Pennant Hills Cicada Chorus on *Corcovado*). The harmonisation of the four voices (soprano, alto, tenor, bass) was re-created by the Harbeth Super HL5*plus*'s exactly as I remembered hearing them in real life, though the voice effects were greatly aided by the studio production of this album, particularly the finger clicks and Andrew Piper's beat-boxing, which sounded just amazing. It was also educative listening to the tonal quality Morrison extracts from his flugelhorn, compared to that of Noordhuis. Morrison's flugelhorn sound is not plaintive at all, but joyous and enervating.


The Harbeth Super HL5*plus*'s had me mesmerised yet again when I heard Ali Edmonds's vocals on her 2015 six-tracker, 'Creatures' because the presentation was just so intimate. It didn't matter whether she was singing solo, multi-tracking her own voice, or being harmonised with: it was as if some ethereal voice was suspended not only midway between the loudspeakers, but also slightly out in front of them. And how about the percussion sound that's revealed on track 2: *We Are Strangers*? It was breathtakingly real... so real I wondered if it could get any better. And yes, it did, with the very next track, *Seagull*, which this time adds a finger-strummed electric guitar, and a fuller, yet simultaneously softer soundscape. As the track developed it was amazing how the Harbeths could separate the dynamic, crisp drum sounds from the gauze-like harmonies, yet at the same time reconcile the two musical worlds.

Piano sound was delivered perfectly by the Harbeths. I played a superb recording (01 by Katzenberger Productions), which has mezzo-soprano Barbara Hofling and pianist Grainne Dunne playing songs by Mendelssohn, Schubert, Faure and others. The recording is a distant 'in-concert' capture with a DR of 19 and the Super HL5s delivered a true 'you are there' performance.

The Harbeths proved just as adept reproducing a full orchestral sound. I listened to all Tchaikovsky's Symphonies, as realised by Andrew Litton and the Bournemouth Symphony Orchestra, CDs

I originally purchased for their superb sonics (not to mention the low price), but I have since come to enjoy the performances so much that I actually now prefer to listen to Litton and the BSO over the set by Karajan and the Berlin Philharmonic Orchestra, which I also own, despite the technical proficiency of the members of the latter outfit. Again recorded with an 'in concert' microphone capture, the majesty of the orchestral sound was fully rendered by the Harbeth HL5*plus*'s, from the depths of the tympani to the tinkling of the triangles.

## CONCLUSION

I was in the fortunate position of being able to listen to half-a-dozen pairs of superb loudspeakers during the same period I had the Harbeth Super HL5*plus*'s in for review and whilst I enjoyed all of them, and thought that each offered specific performance enhancements in one way or another compared to the Harbeths—some had better bass, others a more-neutral midrange, and yet others a high-frequency response I found slightly more 'pure'—I kept finding that at the end of each working day, it was always the Harbeth Super HL5*plus*'s that I wired up in order that I could listen for my own enjoyment during the evening. They just sounded 'so right'.  Ernest Denman

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**LABORATORY TEST REPORT**

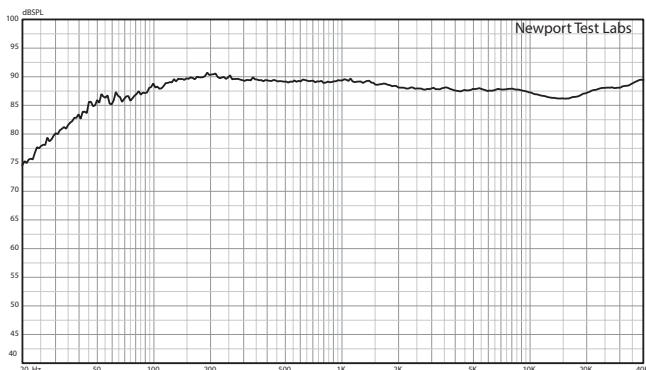
Harbeth's Super HL5*plus* proved to have an extremely smooth and superbly extended frequency response, characterised by a very slight spectral tilt that saw the bass/midrange region very slightly elevated compared to the output at higher frequencies. You can see the evidence of this in Graph 1, which shows the averaged frequency response using pink noise as a test stimulus. It's important to first note the extension and linearity of the Harbeth Super HL5*plus*'s response, as measured by Newport Test Labs, because it extends from 45Hz to 40kHz  $\pm 3$ dB—extension and linearity

**■ Harbeth's Super HL5*plus* proved to have an extremely smooth and superbly extended frequency response**

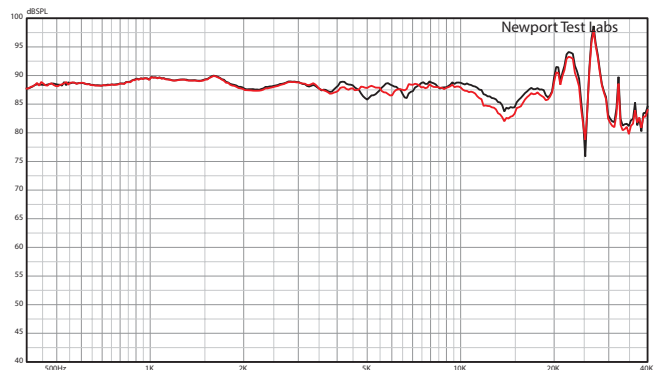
that are, in my memory, unprecedented. Between 80Hz and 10kHz the response is within  $\pm 1.25$ dB which is, yet again, a superb result. However, in achieving this result you can see that rather than the fluctuations being distributed equally across the bandwidth, the Harbeth's response tracks at around +1.25dB between 150Hz and 1kHz, then drops down

through reference to track at around  $-1.25$ dB between 2kHz and 10kHz. The difference in levels is so slight that I'd expect that if there is an audible effect, it would be very small.

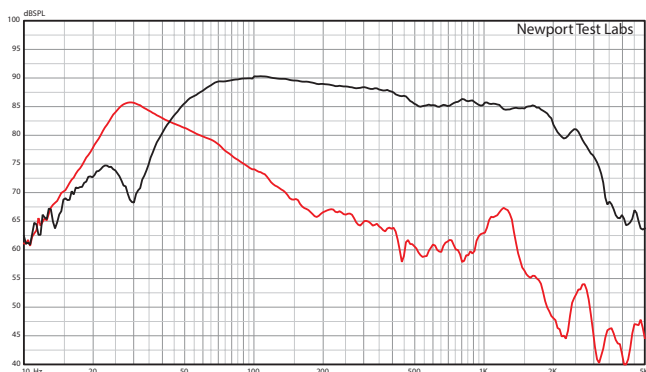
The high-frequency response of the Super HL5*plus* is shown in greater detail in Graph 2 because for this measurement, Newport Test Labs has used a gated sinus acquisition which



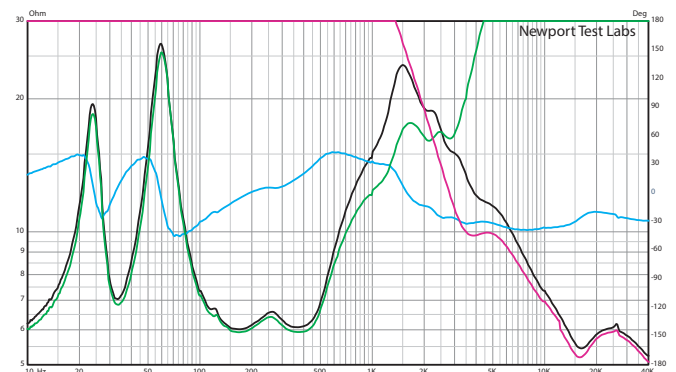
Graph 1. Averaged frequency response using pink noise test stimulus with capture unsmoothed. Trace is the averaged results of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter. [Harbeth Super HL5+]



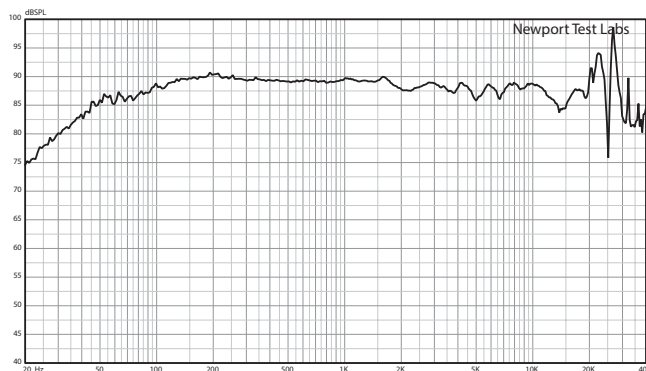
Graph 2. High-frequency response, expanded view, with grille on (red trace) and with grille off (black trace). Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 400Hz. [Harbeth Super HL5+ Loudspeaker]



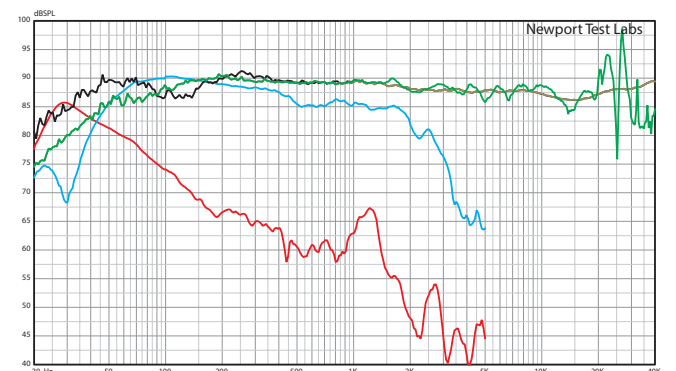
Graph 3. Low frequency response of front-firing bass reflex port (red trace) and woofer. Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas.



Graph 4. Impedance modulus (black trace), with high-pass only (pink trace) and low-pass only (green trace) speakers plus phase (blue trace). [Harbeth Super HL5+ Loudspeaker]



Graph 5. Frequency response. Trace below 1kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus with capture unsmoothed, from Graph 1. This has been manually spliced (at 1kHz) to the gated high-frequency response, an expanded view of which is shown in Graph 2. [Harbeth Super HL5+ Loudspeaker]



Graph 6. Composite response plot. Red trace is output of bass reflex port. Light blue trace is anechoic response of bass driver. Green trace (see Graph 5 for technical details). Olive trace is pink noise response above 1kHz. Black trace shows effect of wall loading. [SHL5+]

enables incredibly high resolution of the response to reveal details that the human ear could not detect. For example, although the graph shows that the Harbeth's response is smoother when the grille is in position than it is without it, the differences are so small that I doubt they would be audible. Nonetheless, if you'd like the confidence of attaining the smoothest response, you should always listen to the Super HL5*plus*'s with their grilles in place. This will entail a tiny degree of attenuation between 10kHz and 20kHz, as you can see from the graph. The jaggedness of the response above 20kHz is caused partly by the resonant peaks of the tweeter and super-tweeter (one each) and partly by interference effects of the two drivers at the microphone position. As you can see, this response was achieved with the microphone on axis with the tweeter, rather than with the super-tweeter. *Newport Test Labs* found that measuring with the microphone on-axis with the super-tweeter gave a slightly flatter response above 20kHz, but was not the ideal microphone position for frequencies below 20kHz.

Graph 3 shows the low-frequency response of the Harbeth Super HL5*plus* measured using a near-field technique that simulates the response that would be obtained in an anechoic chamber. The performance of Harbeth's proprietary bass/midrange driver is exceptional, being essentially flat right out to 1.7kHz. At the bass end, the response rolls off below 50Hz. Note that the 'bump' in the bass response in this graph is an artefact of the near-field measurement technique. The bass reflex port's maximum output occurs at around 29Hz, coinciding very neatly with the minimum output of the bass driver at the same frequency, but slightly below the 33Hz 'saddle' in the impedance (Graph 4) that signifies the frequency to which the port is tuned. The port's output has a fairly high-Q, with a clean roll-off either side (6dB down at 23Hz and 60Hz) and there's almost no unwanted leakage from the port at higher frequencies, save for a very minor one at around 1.3kHz and one that's even more-minor at 2.5kHz.

The impedance of the Harbeth Super HL5*plus* remains above 6Ω across almost the




### ■ If you'd like to attain the smoothest frequency response, you should always listen to the Super HL5*plus*'s with their grilles in place...

entire audio band (dropping below 6Ω above 14kHz, but still remaining above 5Ω out to beyond 40kHz) and for the most part remains higher than 8Ω. This, combined with the benign phase angle (blue trace) that doesn't swing more than +45° or -30°, means that the Harbeth will be a very easy load for any amplifier, and especially friendly towards both Class-D and valve designs. You will, however, need to use a moderately powerful amplifier to extract best performance from the Super HL5*plus*, because *Newport Test Labs* put the sensitivity at 86.5dB SPL under its usual test conditions. This is actually fractionally higher than Harbeth's claim of 86dB SPL, which makes Harbeth the first manufacturer that's ever claimed a sensitiv-

ity rating lower than that to which it is actually entitled to claim. (Needless to say, most manufacturers overestimate by a considerable margin!) Kudos for this modesty notwithstanding, it's a result that's still slightly lower than the average. The impedance trace is quite clean, but the blip at around 125Hz is likely a panel resonance, and the one at 26kHz likely related to the tweeter resonance. The 'steps' in the response just above 2kHz and at 3kHz and 4kHz are unusual, possibly a side-effect of some response-tailoring by the crossover network.

Graph 6 is a composite that overlays the various measurements so you can see how everything 'fits' together. However *Newport Test Labs* has added an extra measurement (the black trace), taken in-room to show how the bass of the Harbeth becomes more extended when it's moved closer to a rear wall (10cm from the rear wall in this example) and with a

stand that put the tweeter one metre above floor level. You can see this pushes useable low frequency response to below 30Hz. The attendant suck-out centred around 110Hz could likely be ameliorated or even removed entirely by moving the speaker slightly closer to the floor. [*Editor's Note: Harbeth recommends stands used with the Super HL5*plus* be 430mm high for best performance.*]

To reiterate what I said in the introduction, the extension and linearity of the Harbeth Super HL5*plus*'s frequency response is in my memory, unprecedented. I've seen speakers with better low-frequency extension, speakers with better high-frequency extension, and speakers with greater overall linearity. But the Harbeth Super HL5*plus* is the first speaker I've seen that has been able to deliver all three of these very desirable attributes in the one package. Equally important, it's done it with a design that's an easy load for any amplifier to drive and using a cabinet whose dimensions are not even close to being visually intimidating. I'm not sure who to congratulate for this marvellous achievement, the BBC, Dudley Harwood or Alan Shaw... or all three. But whoever was responsible—individually or collectively—congratulations are most certainly due, and even more certainly very well-deserved.  Steve Holding