

HARBETH'S NEW MINI-MONITOR ENTERS PRODUCTION AS THE P3ESR DESIGN PROCESS REACHES COMPLETION

What goes into making a new compact loudspeaker, and why does its design take four years to perfect?

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Creating a new legend in miniature

A PRE-PRODUCTION SAMPLE OF HARBETH'S NEW P3ESR (LEFT) WHICH BOASTS A 110MM RADIAL™ DRIVE UNIT (BELOW)



CREATING a world-beating loudspeaker need extreme dedication. It has taken Harbeth's designer nearly four years of hard work to produce the P3ESR – successor to the highly popular and much loved P3 mini monitor.

As the replacement for the BBC's famous LS3/5A shoebox-sized speaker, the P3 scaled new performance heights but was introduced in 1990 which predated Harbeth's patented RADIAL™ cone

material. ES versions of the P3 brought more modern styling, such as rounded front edges, and introduced Harbeth's SuperGrille™. But MD Alan Shaw knew there was more that could be done if only he could utilise RADIAL™ technology – the secret of the super-clean sound of the P3's bigger brothers.

Work started back in 2005 to research a 110mm (5-inch) RADIAL™ woofer to become the heart of a new-generation P3. "From the start my priority was to design a speaker which was easier to drive yet retaining the great low frequency performance for which the P3 is renowned", says Alan. "Because the P3's sealed cabinet works so well close to the wall I didn't want to introduce a port. This would have restricted placement options for our professional users who need a clean sound in the confines of a small studio or truck."

Working with a 5-litre cabinet volume Alan had to ensure that the bass response was solid and far exceeded users' expectations despite its diminutive size. "A good room-match is critical, combining the speaker's natural bass characteristics

with the room's response. The P3ESR's integration with the room is extremely smooth and extended", says Alan.

While anechoic data was invaluable for perfecting the mid and high frequencies it cannot be relied upon for a perfect bass. Design effort here had to be concentrated in Harbeth's listening room which simulates the typical user's environment.

"The P3ESR is a 21st-century monitor which I know our customers will find they can't live without", says the designer. "It combines all the qualities of the earlier P3s, very much in the style of the famous LS3/5A, but with the clear sonic advantages of RADIAL™ technology – which becomes immediately apparent after the first few notes. A new star is born!"

"WORKING WITH A 110MM CONE WAS QUITE A CHALLENGE", ADMITS ALAN. "I HAD TO ENSURE IT HAD A SMOOTH, CLEAN RESPONSE."



A PERFECT TREBLE PARTNER

ONCE the mid/bass unit was perfected attention turned to a suitable tweeter to produce a sweet treble. SEAS have created a derivative of the P3's custom-made unit which has a new open-weave grille for greater transparency as found in the Compact and M40.1. "Intense work on the crossover gives the P3ESR an immensely satisfying sound", says the designer. "There is lots of bass; a big, wide stereo soundstage; an easy-on-the-ear sound."



Alan Shaw testing early P3ESR in BBC chamber

Re-engineered for a better sound

Re-designed from the ground up, the new P3ESR boasts many improvements over its record-breaking predecessor

heart of the new P3ESR not only completes the family, but brings sonic improvements which can only be found with RADIAL™”, says marketing man Trevor Butler. The speaker now has a higher impedance, making it suitable for paring with an even wider range of amplifiers. It also claims better power handling and less distortion than the old P3. The ‘ESR’ version still mirrors the LS3/5A’s

“...brings sonic improvements which can only be found with RADIAL™.”
TREVOR BUTLER

‘perfect’ bass response – a Butterworth 2nd-order with a Q of 0.7 for superb transient response and optimised LF extension. “With its excellent credentials and easy load, good sensitivity, wide and smooth sound, the P3ESR sets the new benchmark among mini monitors”, claims Trevor. “It is sure to outrun the record-breaking 20 years of the earlier P3 which itself out-lived the BBC Research Department’s famous Harbeth ‘3/5A by many years.

ROSEWOOD RETURNS

HARBETH’S worldwide outlets are now taking orders for the new P3ESR and the first shipments are expected in June.

The factory reports extensive back-orders already. To celebrate the conclusion of the four-year design process, Harbeth is delighted to be offering a rosewood veneer finish. “This reminds me of the glorious days when we were proud to offer this stunning finish”, says production chief Andy Sinden. Other finish options will be standard cherry veneer and eucalyptus. Details from your local dealer or from www.harbeth.co.uk



SHARING SECRETS...

...of the new P3ESR with users. We have used the latest technology to capture the designer in action. The process of laying out the P3ESR’s crossover circuit board for the best sound is revealed in full colour with commentary as Alan talks you through the steps he took. To see the video, click here to be taken to the Tech Talk pages on the Harbeth website.



STEP-BY-STEP DESIGNING REVEALED ONLINE

DESIGN IN STEREO, FOR STEREO

IT MAY seem odd, but many loudspeakers are only ever designed in mono, so it’s little wonder that they are poor at creating a good stereo illusion, *writes Trevor Butler.*

During the design process all of Harbeth’s speakers are developed *in stereo*, but this is not a universal approach among speaker designers.

Many of today’s loudspeakers are designed entirely in single-speaker mono. The problem with that approach, feels Alan Shaw, is that you cannot avoid bunching the performers in the centre of the stereo image. “It is as if they have all taken a step forwards and have become over intimate”, he explains.

Designed in stereo from the outset, the P3ESR has a lush, wide, deep and even soundstage. Stereo is an illusion and the designer needs a basic understanding of

psychoacoustics – how the ear interprets sounds and how the stereo illusion is spread out from just two loudspeakers to create the illusion of a 3D soundstage.

DESIGNING WITH STEREO LISTENING IN MIND FROM THE START

