



STEREO LOUDSPEAKERS

**WHATMOUGH
SIGNATURE
P15-SE**

Whatmough's Signature Series loudspeakers are no-expense-spared high-end designs aimed specifically at music lovers who want to extract the absolute maximum from their CDs, DVDs and high-res audio files.

EQUIPMENT

Very few loudspeaker manufacturers build their own drivers. There are many reasons for this, but it comes down mostly to cost-effectiveness and innovation. The R&D cost and the manufacturing facilities required to design and build a driver mean that unless you are building thousands of identical models, it's better to purchase your drivers from a company that specialises in building drivers. Well-known suppliers include SEAS, ScanSpeak, Vifa, Peerless, HiVi, Accuton, Fountek, Fostex, Audax. However, when it comes to specifying drivers, these companies provide designs with varying quality levels. Swedish supplier SEAS, for example, has Lotus, Design, Prestige, Excel and Exotic series drivers. So when a designer is choosing, say, a tweeter, there is often a choice between 10 or 15 very similar models, all with almost-identical specifications, but with different materials and differing levels of manufacturing quality. The least expensive of these tweeters might be available for \$50 or so, but the most expensive could easily cost \$1000 or more, so it's pretty obvious that the tweeter the designer chooses for a particular model will have a dramatic impact on the final retail price of the finished loudspeaker system. We're mentioning all this for good reason, which is that there are two different versions of the 35mm dual-concentric tweeter, one of which is a high-quality model made by Vifa, while the other is an even-higher quality model made by ScanSpeak. The two tweeters look absolutely identical (at least from the business-end!) but the performance of the ScanSpeak model is superior to that of the Vifa... so superior that it's seven times the price of the Vifa model. Guess which ones Whatmough is using? Yep, the expensive ones. And Whatmough uses the same

tweeter in its flagship Paragon model... and given the price of the Paragon, if a better tweeter were available anywhere in the world, Whatmough would have used it! (We should also point out that although you might appear to see this tweeter on models from other manufacturers, you should be careful before passing judgement, because you could instead be looking at the cheaper Vifa version or, scarier-still, a super-cheap copy out of China. In regard to the use of Chinese copies, this is yet another reason for buying only well-known 'brand name' loudspeakers sold by reputable hi-fi dealers.) So what's so special about this tweeter anyway? First, you can't miss the 'Madonna's Bra' phase plug! Second, the dome is actually attached to the phase plug in order to concentrate the radiating area around the voice coil. This offers more control of the diaphragm and reduces

distortion and losses that occur at the centre of the dome on ordinary dome tweeters. The phase plug also acts as a wave guide, reducing high frequency cancellation. Behind the dome is a venting system that uses a needle to reduce turbulence in the air cavity and, rather than use ferrofluid cooling, which reduces dynamics, cooling is achieved via a system of vents and copper rings. The driver magnet is SD-2-type neodymium.

The bass/midrange driver in the Signature P15-SE is rated by Whatmough at 170mm because this is the 'mounting hole' diameter that's used by driver manufacturers. Our tape put the overall basket diameter at 180mm. However, the important Thiele/Small diameter is 131mm, for a useable cone area (Sd) of 135cm². The cone is formed coated wood pulp (Whatmough calls it hybrid fibre) and is driven by a 33mm high-temp

voice coil and a double magnet system that's so large it accounts for much of the weight of the Signature P15-SE (about which more later). The driver chassis is a fully cast frame that has been beautifully engineered in a way that maximises the radiation from the rear of the cone.

The crossover network in the Signature P15-SE is hand-soldered and point-to-point wired with all components mounted on a piece of MDF so that they can be firmly secured with strappings and adhesives. And what components they are! Whatmough is using custom 'Obbligato' Premium Gold capacitors that are made using extra-thick aluminium foil made in Germany. These 'super-premium' capacitors are made with extra tight windings and have no internal voids. The few resistors in the network are high-power metal film types, while

the inductors are all air-cored and cross-mounted so there can be no unwanted magnetic interactions between them.

Low down and centred on the front baffle is the bass reflex port. It's made of black plastic which is flared at the exit, but not at the entrance. It's 65mm in diameter and 84mm long. The grille is made from black cloth stretched over a 9mm MDF frame and fastens to the front baffle using the usual plastic 'lug'n'plug' connectors, but they're oversized and very tight, so we're confident that you won't ever get any frame rattle from this design!

As you can see from our photograph, the Signature P15-SE has curved cabinet sides. Whatmough did extensive research into cabinets and concluded that cabinets with curved walls were far less resonant and had far fewer internal standing waves than cabinets with flat walls. Another finding was that minimising cabinet resonances via extensive bracing brought about dramatic improvements in clarity and transient response. According to Whatmough — and we'd agree wholeheartedly — the sonic difference

between a speaker system in a well-designed enclosure and that same system in a mediocre cabinet is huge. You can tell how much bracing is inside the Signature P15-SE when you try to lift one... and we mean 'try'... because despite their relatively small size, they're incredibly heavy. Each cabinet weighs 28kg! As with all Whatmough speakers, two sets of high-quality gold-plated binding posts are supplied so you can bi-wire or bi-amp if desired. Each cabinet measures 240 x 490 x 330mm (WHD) and is available in real Bubinga timber veneer or in a Piano Graphite finish.

PERFORMANCE

We had to get rid of the first pair of stands we used to support the Whatmough Signature P15-SEs because their bases weren't up to supporting the weight of these speakers! So make sure you have solid, heavy stands with very large bases. We also 'Blu-tacked' the bottoms of the Signature P15-SEs to the tops of the stands for added security.

The grip the bass driver in the Signature P15-SE exerts on the air in the room is impressive, and the speed of the driver is incredible. The result is incredibly dynamic sound, from the deepest bass right through to the highest midrange, just before the driver hands over to the tweeter. Listen to even the most heavily-layered orchestral works and the strength and solidity of the bass foundation is presented completely unfettered, with a sense of pace and ease that belies the size of the driver... and the size of the cabinet. No doubt the bass reflex port is doing its stuff, but some of this must also be due to the freedom permitted by the exposed voice coil design of the bass/midrange driver, because air cannot be 'trapped' under the dustcap. Listen to plucked double bass, or an electric bass guitar and you'll hear what we mean straight away. The immediacy of the bass is magnificent. Just listen to bassist James Jamerson's incredible bass line on Marvin Gaye's *What's Goin' On* for proof positive.

Neither could we fault the quality of the midrange sound. Human voice, that great revealer of any potential loudspeaker design failings, failed to reveal any at all in the performance of the Signature P15-SEs. To the contrary, we auditioned a wide selection of male and female vocalists and were impressed by every single track we tried. The Signature P15-SEs' delivery of vocal nuances is exceptional, and tonality is preserved with an accuracy that had us shaking our heads with amazement. When playing live sets (Janis Ian's 'Working Without a Net' is a favourite) you only have to close your eyes to be right there, and the same goes for any singer or ensemble working an intimate venue like a club.

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As for the treble, we could immediately hear why Whatmough fell for the ScanSpeak ring radiator. Its sound is clean and lucid, so the high frequencies really sparkle with freshness and light. Our only tiny quibble is that the tweeter noticeably delivers its best performance on-axis, so you should to angle the speakers in to face the listening position during set-up. However, even off-axis the ScanSpeak's performance is better than most tweeters manage on-axis, so it's all a question of degree.

CONCLUSION

Whatmough's Signature P15-SE Loudspeakers are superb transducers. For their size there are few — if any — other loudspeakers that can even approach their level of performance, and if we're talking midrange and treble, there are few that come close irrespective of their size or price. ■

**Whatmough
Signature P15-SE
stereo loudspeakers**

- Superb high frequencies
- Midrange accuracy
- Bass for size

- Best on-axis
- No holes in terminals
- Lacks spike threads

Price: \$4499 (Bubinga)/
\$4799 (Piano Graphite)

Configuration: Two-way bass reflex
Impedance: 8 ohms (nominal)
Amplifier power requirement: 25-100W
Power handling: Transient level in excess of 150 watts with an average level of 60 watts
Sensitivity: 89dB/1W/1m
Frequency response: 45Hz to 40kHz ±3dB
Dimensions (whd): 240 x 490 x 330mm
Weight: 28kg each
Finish: Real Bubinga Timber Veneer or Piano Graphite
Warranty: Five years

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