

Ophidian Loudspeakers

PAUL MESSENGER TRIES OUT THREE UNCONVENTIONAL TRANSMISSION LINE SPEAKER DESIGNS FROM THE WIRRAL

Mojo



HIFICRITIC
RECOMMENDED



Minimo

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Among loudspeaker designers, Gareth James is surprisingly young, which might be either an advantage or a disadvantage – and is probably both. While it might introduce a soupcon of naivety, it also means that he brings a freshness of thought and attitude to the table, which is certainly a plus, and is reflected in the three speakers he’s created.

I first encountered these Ophidians when I visited the one-day hi-fi show held at Cranage Hall in Cheshire at the end of June. Being located within spitting (or at least motoring) distance of Manchester, this event proved a rather happy hunting ground for yrs trly, as I encountered a number of new and interesting brands, including these three closely related loudspeakers.

Their most obvious distinguishing characteristic is the use of tiny 90mm drive units throughout the range, but it’s also notable that all three models have transmission line bass loading. Indeed, the little *Minimo* is one of the smallest speakers I’ve ever encountered by any standards (never mind anything else using transmission line loading). There’s some logic in using a tiny driver, for at least two reasons. It’s perhaps obvious that a small bass/mid driver will make a smoother transition to an even smaller tweeter, especially in terms of distribution consistency. Arguably rather more significant is the sometimes overlooked observation that a main driver

with small dimensions only requires a similarly small enclosure for loading purposes.

The compromise will be found in a relatively modest sensitivity, power handling and bass extension, and will restrict the maximum loudness capability. Limited sensitivity probably has little importance in these times, but the others may depend on individual circumstances, specifically the answers to the following questions: how loud do you want to play your music? And how big is the room in which you’re intending to use these speakers?

There are currently three Ophidian models, beginning with the little two-way, two-driver, £699/pair *Minimo*; moving up to the slight larger two-way, three-driver *Mojo* stand-mount (£999/pair), and culminating in the seven-driver, three-way floorstanding *Mambo*, at £1,995/pair, the latter equipped with a small spike-equipped plinth to extend its footprint. All the 90mm drivers appear to be identical, whether they’re operating as bass/mid or bass-only units (in the case of the floorstanding *Mambo*). However, although these drivers might be nominally 90mm units, in point of fact their dish-shaped metal diaphragms are just 55mm in diameter, so even the four connected in series/parallel and used in the *Mambo* will have a rather smaller total area than a typical 165mm unit (disregarding any mutual coupling effects).

Said main driver comes from a US operation based in Ohio and called Dayton Audio, which is new to this reviewer but has been around for at least 20 years. Also used throughout the range, the tweeter is a 27mm doped fabric device from that familiar and reputable Norwegian OEM supplier SEAS. Both use neodymium magnets.

There has long been fierce debate about the merits and otherwise of loading a drive unit with a transmission line. There’s no denying that a transmission line creates an impedance trace that looks very similar to that of a rather simpler reflex-loaded speaker, which does perhaps indicate some similarity, but then so does a tuned column. Despite mathematical modelling, it’s a situation that seems unlikely to be satisfactorily resolved any time soon. However, one benefit of the transmission line is the way the internal partitions used to create the folded line is bound to reinforce the enclosure very effectively.

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Measurements

The floorstanding *Mambo* was the first to be subjected to our in-room far-field averaged measurements, and this revealed a generally good overall balance from 30Hz upwards when mounted well clear of walls, albeit alongside a rather modest sensitivity of around 86dB, and with a couple of noticeable dips. The c5dB dip measured at 1.8kHz is arguably acceptable, from the point of view of avoiding an aggressive character, but the c8dB dip at 350Hz is potentially rather more troubling.

The impedance indicates that the line is tuned to around 40Hz (which correlates well with extension down to 30Hz). It's also quite demanding, especially at very low frequencies where it drops below 3ohms.

The two-way *Mojo* inevitably had rather more low frequency limitations when located well clear of walls, the output being rather lean 60 – 140Hz. However, moving it back so it was as close as possible to a wall had dramatic consequences, leading to a distinctly strong output 45 – 300Hz. As a spot check, locating the speakers so that the gap behind it was 25cm gave fine measured and subjective results. The solution must be to experiment with the positioning of these speakers in situ, as the practical tonal balance will tend to vary from one room to another. Unsurprisingly, sensitivity is a dB less than that achieved by the *Mambo*, registering a modest 85dB. However, above 300Hz the *Mojo* delivers a response that's remarkably flat and smooth, with no sign of a presence band dip.

With its transmission line tuned to 50Hz, it must be said that the impedance trace is somewhat disappointing, as it's around 3ohms through much of the low frequency region, and dips even lower at very low frequencies, which must be borderline acceptable, especially in view of a rather modest sensitivity.

The tiny little *Minimo* is surely intended primarily for a desk top location, so it came as quite a surprise to discover that it was capable of driving a quite large (4.5x.7x5.7m) room within reasonable limits. Close-to-wall siting did tend to over-emphasise a peak at 280Hz, but moving it out, initially by 40cm, completely removed the peak and resulted in a rather impressive overall in-room response. It now measured essentially flat (ie within ± 2 dB) from 50Hz up to 18kHz, apart from a plateau from 550Hz – 2.5kHz at ± 1.5 dB (albeit alongside inevitably low sensitivity of around 82dB). The peak threatened to return when the speakers were located 20cm out from the wall, so leaving a 30cm space proved optimal.

The transmission line here is tuned to 60Hz, so the more modest bass extension is pretty much inevitable here. Happily the simple two-driver line-

up is reflected in a reasonably easy impedance load, which rarely strays below 4.5ohms.

Sound Quality

While it's true that all three Ophidian models have significant merit, it's maybe inevitable that one is more equal than the others, and on this occasion the winner has to be the £999 *Mojo*. This model not only delivers an impressively neutral balance, but also demonstrates a remarkable ability simply to 'disappear' acoustically speaking, leaving just a soundstage for the listeners to appreciate and enjoy.

Among the negatives are occasional 'chesty' effects and a sound that's a shade lazy and lacking in dynamic vigour. The impedance and sensitivity combination is a far from easy load too, but ultimately this speaker delivers a quite magical freedom from boxiness and reference standard overall neutrality.

Stereo imaging's focus and depth was marginally compromised by the need for some wall reinforcement, but is very good nevertheless. An acid test for any modestly priced loudspeakers is how rapidly I change them for something more exotic after I've finished listening to them, and one thing that distinguished the *Mojo* is that I simply left them in the listening room for days: they're simply that good...

If the *Mojo* was my favourite Ophidian, the tiny little *Minimo* followed closely in second place. It doesn't quite match the overall sound of its bigger brother, being a trifle less capable through the bass region and a little duller at the top end. But it still has much of the same neutrality and splendid freedom from enclosure boxiness. And because it's so exceptionally small, it should have a particular appeal to close-up desk-top application.

The overall concept of Ophidian's floorstanding *Mambo* looks very attractive, as does its general lack of boxy coloration. But it's also relatively pricey and suffers somewhat from a combination of the presence energy dip and the subsequent treble energy recovery, which gives voices – and speech in particular – a slightly 'shut in' quality. However, on the plus side it also sounds significantly more open and expressive at low frequencies than the smaller models.

Conclusions

With their transmission line loading, and the use of multiple tiny US drivers, these Ophidian speakers provide an interesting alternative approach. Despite their rather demanding amplifier loading, these speakers – especially the *Mojo* – actually work rather well. Their noteworthy freedom from boxiness and superior neutrality demands Recommendation for all three.

Manufacturer's Specifications

Make	Ophidian
Models	Minimo/Mojo/Mambo
Frequency responses	53Hz/46Hz/38Hz - 28kHz
Sensitivities (2.83v)	85dB/87.5dB/87.5dB
Drive units	1/2/6x90mm, alloy cone, neodymium motor 1x27mm, soft dome, neodymium motor
Impedances	4/4/4ohms (see text)
Available finishes	oak, walnut veneers; satin black, satin white paint
Sizes (HxWxD)	18x12x14.4 25x14x20 79x14x17cm
Weights	1.9 / 5 / 10kg
Prices	£699 / £999 / £1995

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Mambo