

PMC prodigy1

It wouldn't be a PMC loudspeaker without transmission line bass loading, and the diminutive prodigy1 is no exception
 Review: Ken Kessler Lab: Paul Miller

One of my secret loves has long been transmission line speakers. I miss IMF (named after the designer, Irving M. Fried), the doyen of the genre, although the technology has been used by other brands – most notably PMC. You can therefore imagine my delight when the prodigy1 arrived at a mere £1250. I'd been hearing about it for months, as the prodigy1 (with lowercase 'p') was a talked-about launch at the 2023 Munich High-End Show.

While the same PMC-made drivers – the 133mm natural fibre long-throw woofer and 27mm soft dome tweeter – feature in the prodigy5 floorstander [see p23], I was especially keen to experience the prodigy1 as I have been on the prowl for a small speaker which fits in price-wise between the 'ribbon' tweeter-equipped Quad S1 (£499) and LS3/5As from around £1800 upward. With the prodigy1 being arguably the smallest transmission line speaker ever produced, and an easy swap for both those models in terms of size, how could I resist?

CRITICAL THINKING

Not having the means to research every transmission line speaker produced, PMC's boast about it being the smallest seems plausible [see PM's boxout, p65]. The prodigy1 measures only 320x162x237mm (HWD), plus another 10mm if you fit the optional grille. The speaker is incredibly light, too, at 4.5kg, which makes it easy to handle whether you're muscle-bound or a weakling such as I.

Although user-friendly in many ways, setup of the prodigy1 is achingly critical, as optimal performance is down to positioning. Aside from ample power, amp choice isn't an issue. But, *oy vey!* The toe-in! As one used to Wilson Audio's to-the-millimetre siting, expected of extreme high-end products, it's a shock to hear how this affordable, small two-way responds so dramatically to the slightest change in listening angle.

As you can see from the pictures on these pages, this is otherwise a classic two-way bookshelf design but also suitable for supports

if you prefer your speakers free-standing for better imaging. I opted for my venerable Foundation stands, after trying the four-pillar Music Tools One, the latter being a shade too tall by placing the tweeter above ear height.

At 24in tall, the Foundations were absolutely perfect once rotated through 90°. (The top plate is the same footprint as an LS3/5A, wider than it is deep, whereas the prodigy1 is deeper and narrower.) I added some Blu-tack between the loudspeakers and the stands on PMC's advice.

FREE-STAND AND DELIVER

Thanks to the port exiting at the front, PMC asks users who want more bass to place the speakers closer to the back wall. I found the bass in free-standing mode more than ample, so returned to the real issue of focusing the tweeter. PMC provides detailed instructions on how to position these, most notably advising a degree of toe-in which has the tweeters crossing *behind* the listener. Off-axis listening substantially affects the forwardness and/or brightness of the prodigy1 [see PM's Lab Report, p67]. In other words, it's an essential means of tuning the overall balance of the speaker.

To my surprise, the prodigy1 gave of its best in my room when firing straight ahead. What was immediately apparent is that the listener has to position them *perfectly* in order to find the ideal angles for both the treble balance and soundstage width and depth. These are not speakers to share with audiophile pals across a long sofa...

In my situation, with the prodigy1s crossing behind my head, the soundstage depth was vast but slightly narrowed while the treble was a bit dull. Having them cross in front of me *à la* Sonus fabers of yore was not a dissimilar result. Firing straight ahead proved ideal in every parameter for my tastes.

RIGHT: The stand – not currently a factory option from PMC – illustrates the ideal placement for its prodigy1 miniature. Curved black grilles are offered, however, at £99 a set

'I wasn't actually giving these speakers a hard enough time...'



TINY TRANSMISSION

Speakers with ports or other apertures in their cabinets are typically 'reflex' designs that exploit the Helmholtz resonance of the port air mass to boost their low-frequency output. Transmission line bass loading is a variant of this technique seen some 90 years ago but formally proposed in 1965 by Arthur Bailey in *Wireless World*. Bailey's solution utilises the Helmholtz resonance, albeit within a far longer, and typically folded and tapered acoustic channel. The overall length of this pipe determines its quarter-wavelength tuning (ie, 4.3m for 20Hz), while foam or wool damping within the channel is used to attenuate the rear output and any reflections or resonances within the enclosed air space [see inset picture].

Not supplied when PM was undertaking his Lab measurements, or photographing the prodigy1, are its optional grilles, at £99 per pair. These consist of plastic fretwork



Ideally, transmission lines should be closed – as seen in B&W's Nautilus [HFN Jan '13] – or sufficiently long and well-damped that no vestigial bass output escapes from its 'open' end. This is rarely practical, and especially so in PMC's cute 'shrunk in the wash' prodigy1 which has a very short ~1.5m channel tuned to a notional 60Hz. The relative output from PMC's 'Laminair' port is higher here than from its far larger cabinets incorporating longer, folded ATL (Advanced Transmission Line) channels [HFN Aug '21]. This delayed output, including resonances, exits very close to the 133mm pulp bass/mid driver where local cancellation and reinforcement complicates the 'smoothness' of its bass [see Lab Report, p67]. PM

frames that correspond to the drivers, which are covered with a thin black cloth and snap into place via magnets. I suggest you at least audition the prodigy1 with and without, as there is a slight attenuation of the treble with them fitted, alongside the aesthetic 'blanking' of the baffle. To use or not to use PMC's grilles also compounds the possibilities *vis-à-vis* toe-in, but, hey, you lot are audiophiles so I would expect nothing less than fastidious, painstaking fine-tuning.

PRODIGIOUS!

Once all was what I felt to be optimal, it was almost a journey to the past as I had spent much time with small Radford, IMF and TDL transmission line speakers all those years ago. Transmission line bass egregiously has been accused – by some critics – of the kind of 'honk' associated with some big horn systems or even suffering one-note bass. Again, this was not my experience here. Amplifier choice, however, is another issue as these were not as sensitive as I had anticipated.

LEFT: PMC's 133mm long-throw 'natural fibre' bass/mid driver is loaded via a folded transmission line and front vent [see boxout, above]. The partnering 27mm soft dome tweeter nestles within a short waveguide with protective grille



I happened to be using my old Marantz PM-4, which has a button to turn it into a 15W Class A amplifier, and I have to say that the drop in power was quite audible. Although the Class A mode sounded sweeter, and was more than fine up to my preferred listening levels, head-bangers would need to switch it to the 60W Class AB position.

As diminutive and cost-effective as they may be, with extra appeal to newcomers to audio, or those who don't want big, ugly boxes in their homes and who revel in the modern Spinal Tap blackness of the enclosure, the prodigy1s demand a superior amplifier and unsurprisingly really sing when you turn up the wick. They absolutely adored working with PMC's own cor integrated amp, rated at 95W/8ohm.

PRESENCE FELT

If those who read between the lines are predicting a rock- or funk-biased sound, let me disabuse you of that by praising their unexpected subtlety. With Keb' Mo's *Just Like You* [Okeh/Epic 4841117 2 CD], the shimmer of his bottleneck guitar's sliding notes and the resonance of the instrument's body enjoyed such open, uncoloured presence that I could have been listening to the Quad ESL 57s [HFN Nov '57 & May '10] sitting behind them. There was a warmth which – prejudicial presumptions again – simply contradicted what I was assuming would be an ultramodern, hyper-analytical sound.

If you need to know why I suffered that preconception, it's because PMC also manufactures studio monitors for forensic listening. As detailed and

PMC PRODIGY1



LEFT: PMC's 1.7kHz 2nd-order mid/treble crossover [visible on the picture, p65] is not split and so the prodigy1 is equipped with single 4mm binding posts

precise as the prodigy1's portrayal may be, at no time was there an element of fatigue. With Woody Shaw's *Blackstone Legacy* [Craft Recordings CR00520], his trumpet displays enjoyed attack as crisp and fast as the punchiness and speed demanded, while the saxophones alongside showed the proper reediness – two levels of contrast that could obviate the other, but they never sounded bright.

BASS INVADER

Then I remembered what PMC is also noted for, so it was back to the bass and the efficacy of its ATL topology. Ron Carter's bass was so fat, so substantial – and, yes, so beautifully extended – that I wondered what the prodigy5 could add. Should it turn out that there's even more bass from the floorstander, note that its footprint is the same and will rob you of no more vertical real estate than the prodigy1 on stands.

Having tasted the bass, however, I was drawn to a recording where a bassist was the main focus. The Leroy Vinnegar Sextet's *Leroy Walks!* [Contemporary CR00594] is one of those intimate, late-1950s jazz LPs that makes your system sound better than it should, so I had to temper my analysis with the realisation that I wasn't actually giving the prodigy1s a hard time. Having previously heard

the LP through a system with 10in woofers, I was expecting the sound to feel diminished. It was not.

Because I spent so much time with the positioning, I was rewarded not just with better-than-ample bass from a small box, but with a room-filling soundstage. Within its borders, each member of the group had his own, beautifully defined space, while another strength revealed itself: this speaker loves dealing with percussion. Ultimately, though, I needed to hear something just a little more... *majestic*.

CHORUS OF APPROVAL

With the amp cranked up, I listened to Stanley Black and the London Festival Orchestra and Chorus's *Music Of A People* [London Phase4 LPL74060 open-reel]. Massed vocals, abundant strings, the need for scale... all handled like an IMF TLS50. Demonstrated here was a capacity for conveying the homogeneous 'wall of sound' as would be formed by a chorus and orchestra, while still allowing the listener to home in on individual instruments, if not quite an individual singer.

Best of all, the prodigy1 manages the 'disappearing act' which endears small speakers to listeners who appreciate their approximation of a point source. You would never guess their size if auditioned blindfolded. I might even suggest that PMC's prodigy1 is confused: it thinks it's a gigantic floorstander! ☺

HI-FI NEWS VERDICT

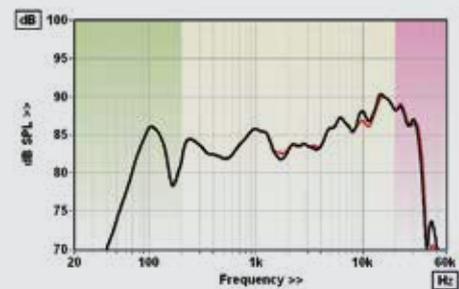
Choose your cliché, especially 'good things come in small packages'. The prodigy1 is such a clever all-rounder that I now understand why it was a smash hit in Munich. It does everything you'd want at the size and price, provided you site it with care. As I said above, I've been looking for a small speaker just above budget/entry-level, and the prodigy1 standmount entirely fits the bill. I cannot praise it too highly.

Sound Quality: 88%

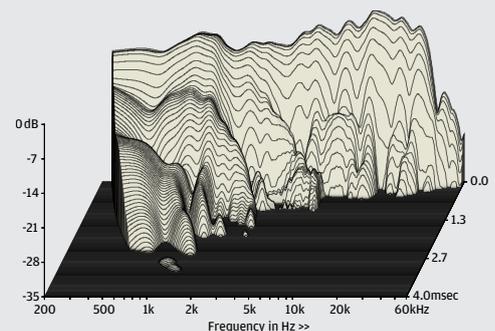


The baby of PMC's prodigy range represents a gentle enough load for the partnering amplifier with a mere 5.0ohm minimum occurring at a high 14kHz and swings in impedance phase of $-59^\circ/3.0\text{kHz}$ and $+40^\circ/1.47\text{kHz}$ contributing to an 'easy' EPDR of 2.3ohm/6.1kHz. However the big upswing in reactive impedance at 2kHz could produce a lift at this frequency when driven by a high source impedance (tube) amp. This aside, the prodigy1's axial response has an uptilted trend [see Graph 1] with a broad boost around 1kHz that lifts its sensitivity to 85.8dB – closer to 84.3dB averaged across 500Hz-8kHz (both figures being lower than PMC's optimistic 87.5dB). Off-axis listening will dial back the treble. Otherwise, the response errors are a high $\pm 4.3\text{dB}$ and $\pm 4.0\text{dB}$, respectively, but pair matching is an impressively tight 0.7dB if we discount the subjectively irrelevant 1.3dB mismatch around 10kHz. PMC's optional grilles were not supplied for test.

Distortion is low at 0.2-0.5% from 100Hz-10kHz at 90dB SPL, and though a 3rd harmonic dominates through mid and treble any resonances above a few hundred Hz are very well controlled [see CSD waterfall, Graph 2]. However, there are some low freq. reinforcement/cancellation modes visible via the 133mm fibre bass/mid cone – a notch at 150Hz broadly coincides with the peak in output from the 'Laminair' vent at 155Hz while another notch at 245Hz mirrors a port peak at 255Hz [see boxout, p65]. These are also reflected in an additional swing in impedance at 160Hz and 'blips' at 260Hz and up to 660Hz in the impedance/phase traces [see also green shaded area, Graph 1]. The trade-off, for this diddy box, is a respectable 68Hz bass extension. PM



ABOVE: Response including nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red



ABOVE: Panel resonances are well suppressed in this small box with only mild driver modes at 2kHz/6kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	85.8dB / 84.3dB / 82.8dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	5.0ohm @ 13.7kHz 49.8ohm @ 1.93kHz
Impedance phase: minimum & maximum (20Hz–20kHz)	-59° @ 3.0kHz $+40^\circ$ @ 1.47kHz
Pair matching/Resp. error (200Hz–20kHz)	1.3dB / $\pm 4.3\text{dB}$ / $\pm 4.0\text{dB}$
LF/HF extension (-6dB ref 200Hz/10kHz)	68Hz / 36.7kHz/35.8kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.16% / 0.5% / 0.4%
Dimensions (HWD) / Weight (each)	320x162x237mm / 4.5kg