"... EXCEPTIONAL ... ASTONISHING ASTOUNDING ..."

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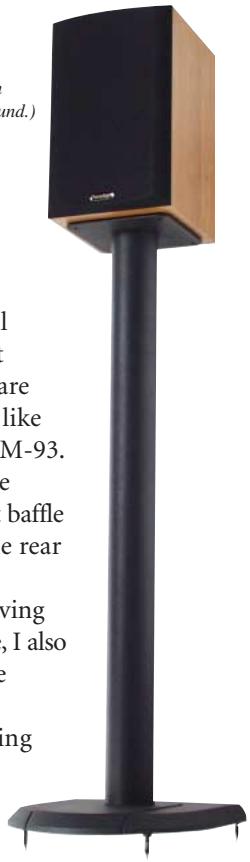
"... these Titans are indeed mighty ... mighty good value, with measurements that are truly spectacular. The sound is crisp, clean and dynamic ..."

by Andrew Marshall



The New Titan
(Improved over version reviewed for even better sound.)

You might think that this is the least expensive speaker model in the Paradigm Performance basic range, but, no it isn't. The Atom and the Micro are below it in price. The last time we auditioned the Titan was in the Summer '93 issue, and then it was an all-wood box. But Paradigm has had in-house injection moulding facilities for years, so it's no surprise that they have followed the lead of British and other manufacturers in putting such machinery to use in making front baffles and rear panels for small speakers.

There are several advantages to this kind of construction, even though the tooling for the moulds is rather expensive. Primary is that of the baffle which can be contoured to control diffraction and provide very smooth frequency response by minimizing lobing and other interaction between woofer/midrange and tweeter. I'll comment more on this below when discussing the Titan's exceptional measurements. Such front and rear panels, being of different materials than the side walls of the enclosure, will also help control resonant behavior, especially if they are braced with internal rods like those in the Wharfedale EM-93. This is not the case with the inexpensive Titan, the front baffle being hot-glued on, and the rear panel held by ten screws. I found all this out by removing those Phillips screws. Inside, I also discovered that my surmise about the front baffle was wrong. I'd assumed, looking at the rear panel, that the curved front (the grille cover is not removable) would also be injection moulded, but it is, in fact, contoured MDF. So much for a great story!

But it does have the resulting anti-diffraction characteristics, and looking further inside the box, I noted the cast aluminum basket on the woofer/midrange, very unusual in a speaker this inexpensive. The crossover is quite simple, an inductor on a ferrite core for the woofer, and a capacitor in series with the tweeter, both of high quality and securely screwed to the baffle back.

"How many systems under $10,000 could boast ±2 dB linearity from 25 Hz up to 15 kHz, let alone one selling for under $1000 ($1500 with 2 subs)?"

Fibreglass wadding is used to damp internal resonances. I didn't open up the PDR-12 subwoofer, which is also a ported design using a 12″ driver. A budget model, it has only rotary controls for level and lowpass crossover setting between 50 and 150 Hz, with no phase (or other) adjustment. There is one line level input and a pair of speaker-level ins and high-pass-filtered outs. Again, even a quick look at the measurements suggests that it gets the job done.

"… astounding … This is nearfield monitor performance in a speaker selling for less than $250 a pair!"

But let's look at the curves for the Titan first see (charts pg. 3). In the Pink Noise Sweep (PNS), we see an astonishing ±2 dB from 70 to about 14,000 Hz. A little warm in the mid-bass, the Titan is an even more astounding ±1 dB from 500 to beyond 12 kHz. This is nearfield monitor performance in a speaker selling for less than $250 a pair!

And, as the axial measurements at the bottom show, it does this over a wide listening area, with smooth frequency response even at 60° off axis which is down in level by about 6 dB; at 0 and 15° the response traces overlay each other almost perfectly. Adding these together in the Summed Axial Response (SAR, the other trace at top) shows a measurement hat would almost perfectly match the PNS but for its controlled dispersion, which brings the overall SAR level down by a dB or two in the mid and upper octaves. Even the unsmoothed on-axis measurement above the axial curves is within a 2-dB tolerance. This is a speaker that will sound uncoloured no matter how you listen to it.

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Looking at the subwoofer measurements we see three curves for full, mid and minimum rotation of the crossover control. The maximum setting at top shows a response of ±2 dB between about 40 and 150 Hz, while that at the middle setting is +2/-3 dB from 30 to 120 Hz. But look at the curve at the minimum setting … ± 1 dB from 25 to 80 Hz! The PDR-12 may not go as deep as a sub like the Sunfire Signature, but over its main operating range it comes very close to the more expensive PS-1200 and PW-2200 models. Its match to the Titan at the lowest setting is almost perfect on paper, with a very close transition at 70 Hz, though higher settings of the crossover might be warranted in some rooms. While one PDR-12 might do in a home theatre system, I'd want to have a pair in a music system for improved phase accuracy and low-frequency ambience. How many systems under $10,000 could boast ±2 dB linearity from 25 Hz up to 15 kHz, let alone one selling for under $1000 ($1500 with 2 subs)?

The budget pedigree of the Titan does, however, show up in its impedance and electrical phase measurements. Impedance reaches 58 ohms at just below 2 kHz, with the expected lesser peaks at 90 and 30 Hz. Electrical phase shifts through 90° between 1 and 3 kHz, making the speaker somewhat less than time coherent. However, it should not be a difficult load for most amps and receivers, especially when high-pass filtered with the sub. The only problem might be partnering the Titan with a single-ended amplifier whose high- output impedance makes frequency response tend to track the speaker's impedance curve; in such a case, you might find the sound rather strong in the mids. It's not a likely situation.

"I suspect that Titans will find their way into quite a few professional facilities …"

In listening I found the Titans alone a little brash, perhaps a result of the bump at 3 kHz on all axes, but the addition of the sub gave its sound more weight and authority. The tweeter's mild aggression was matched by excellent speed on transients. Both male and female voices were a little forward, but very clear and the Titan had good dynamics for a small speaker. Its overall sound was excellent for such an inexpensive speaker, neutral and uncoloured.

"… ±1 dB from 25 to 80 Hz! … a sub that will put out lots of deep bottom … fast, accurate and clean bass with movie soundtracks. … Harmonic distortion is very low, and it will play loud … It's at least as much of a bargain as the Titan."

Soundstaging was excellent laterally, but depth was somewhat foreshortened, this was probably a result of the electrical phase shift in the transition between woofer/midrange and tweeter; this inevitably creates enough time smear to muddy the subtlest directional cures, those that define depth and overall ambient field.

But, hey, we're not talking about a pair of $3000 mini-monitors here. For a pair of speakers costing well under $300 a pair these Titans are indeed mighty … mighty good value, with measurements that are truly spectacular. The sound is crisp, clean and dynamic, and generally better than that of at least one nearfield monitor popular in recording studio control rooms. I suspect that Titans will find their way into quite a few professional facilities, especially the cramped AN post production work stations typical of our digital age. I know at least one studio design consultant who swears by Paradigm speakers, and the smaller the better.

"… excellent speed on transients. Both male and female voices were … very clear … good dynamics … overall sound was excellent for such an inexpensive speaker, neutral and uncoloured."

The subwoofer also deserves special comment. In the 3 curves at highest, mid, and lowest crossover settings, it can be seen that the deep bass is more extended as the crossover is set lower; overall sub level also varies by the 10 dB or so shown. This means that you just have to crank the crossover counterclockwise and the volume clockwise to turn the PDR-12 into a sub that will put out lots of deep bottom. In the lowest setting its response rivals that of the Sunfire Signature, though comparing the charts can be misleading, since our subwoofer-only measurements go down to 10 Hz, while those here start at 20 Hz. The actual low-end limit of the PDR-12 appears to be around 25 Hz. I have also used it in the home theatre system, and liked its fast, accurate and clean bass with movie soundtracks. Harmonic distortion is very low, and it will play loud without that thrumming quality that many budget subs take on. It's at least as much of a bargain as the Titan.

We've been talking about an under-$1000 threshold, when, in fact, this combo with only one sub costs less than $700, and a full home theatre system of five Titans and PDR-12 can come in at less than $1000. *Paradigm* has once again combined exceptional value with *Performance*.

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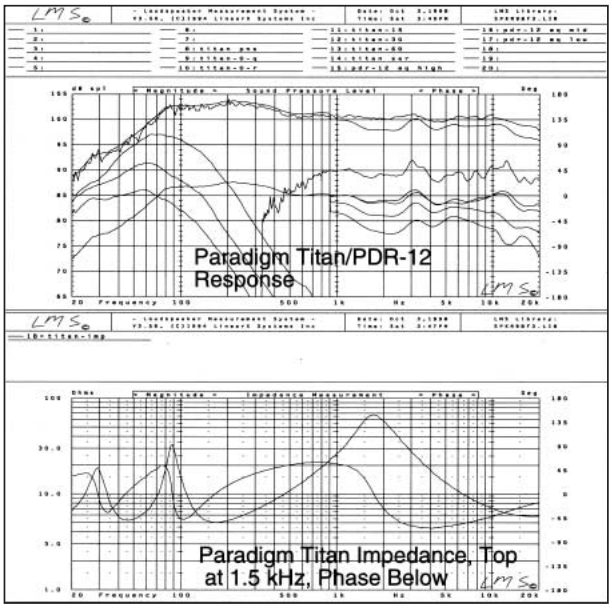

The New PDR 12

(Improved over version reviewed for even better sound.)