

“... truly a

GIANT-SIZED value.”

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Stereo Review

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The New Titan

(Improved over version reviewed for even better sound.)

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Despite its imposing name, the Canadian-made Paradigm Titan, just over a foot high and weighing a mere 10 pounds, is what is usually referred to as a “mini-speaker”. A two-way system, it has a 6-1/2-inch woofer operating in an 11-liter bass-reflex enclosure with a duct-loaded port. This bass/midrange driver, manufactured by Paradigm, has a multilayer voice coil on a Kapton former and a polypropylene cone.

The crossover to the Titan’s 3/4-inch dome tweeter is through a second-order (12 dB-per-octave) frequency-corrected and phase-corrected network. The tweeter’s polyamide dome, driven by a high-temperature voice coil on an aluminum former, is damped and cooled by ferrofluid.

The edges of the grille are chamfered to match the front edges of the cabinet, minimizing diffraction that could disturb the speaker’s stereo imaging. Since the grille

is not removable, we were unable to examine the speaker’s “specially designed front baffle,” which is also said to help keep diffraction at a minimum. According to Paradigm, however, the woofer is mounted so its edge surround is flush with the baffle. The cabinet walls are high density particleboard and the enclosure is generously filled with acoustically absorbent material.

The Titan’s specifications include an on-axis response of 75 to 20,000 Hz ± 2 dB and a DIN-rated low-frequency extension to 55 Hz (the approximate -3 dB frequency in a typical room). Sensitivity in a room is rated at 88 dB, sound-pressure level (SPL) at 1 meter with an input of 2.83 volts, or 85 dB in an anechoic environment. Nominal impedance is 8 ohms, with a minimum of 4 ohms. The Titan is recommended for use with amplifiers rated between



15 and 100 watts. It is intended for placement on a bookshelf or stands.

LAB TESTS

With the speakers placed on 26-inch stands about 8 feet apart and 2 to 3 feet from any walls, the room response above 350 Hz was very smooth and flat, within ± 3 dB from 300 to 20,000 Hz and ± 1.5 dB from 350 to 11,500 Hz. The 200 - to 300 Hz range was elevated because of floor reflections, and the bass output was strong to below 60 Hz.

The close-miked woofer response, combined with the port response, was unrealistically extended, as sometimes happens in this sort of measurement. Although the response seemed to extend to 20 Hz, the distortion in the port output at very low frequencies renders the measurement invalid in that range.

Several response measurements with pink noise at 1 meter (using either a sweeping band of noise or a constant noise spectrum with a sweeping one-third-octave filter) produced generally similar and more realistic results. The speaker's output was consistent within 1 or 2 dB from about 80 or 90 Hz to perhaps 2,000 Hz, with a shallow depression of another decibel in the 4,000 - to 10,000 Hz range and a return to midrange levels at 20,000 Hz. Low-frequency response dropped off rapidly below 80 Hz, to -5 dB at 60 Hz and -17 dB at 40 Hz.

A quasi-anechoic FFT response measurement, valid above 300 Hz, confirmed the general shape of the random-noise measurement. A ± 1 dB variation from 700 to 2,000 Hz was followed by a dip of 3 to 4 dB between 6,000 and 9,000 Hz and a return to midrange levels, or perhaps 1 dB higher, from 10,000 to 20,000 Hz.

The change in output between the speaker's forward-axis and 45 degrees off-axis was less than 3.5 dB below 1,000 Hz, increasing to 4 or 5 dB between 1,200 and 7,000 Hz and falling more rapidly above that.

From -6 dB at 10,000 Hz, the off-axis response fell to -19 dB at 20,000 Hz. The tweeter's phase linearity was very good, with a group-delay variation of less than ± 50 microseconds from 3,000 to 20,000 Hz, corresponding to a path-length difference of about 0.6 inch.

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Impedance reached a minimum of 4.4 ohms at 170 Hz (and 5.2 ohms at 35 Hz) but remained well above 8 ohms over most of the audio range. Maximum impedance was 52 ohms at 2,000 Hz. Sensitivity was 87 dB with 2.83 volts applied. A 4-volt input was required to achieve our reference level of 90 dB SPL.

At 4 volts, woofer distortion was a low 0.5 to 0.6 percent from 120 to 1,600 Hz. It rose to 3 percent at 100 Hz and remained between 3 and 6 percent from 100 to 30 Hz.

The Paradigm Titan handled rather large power inputs without audible distress or damage. At 1,000 and 10,000 Hz, our amplifier clipped at 330 watts and 600 watts, respectively, with a single-cycle sine-wave burst, but the speaker gave no signs of audible distress. At 100 Hz the small woofer reached its excursion limits, with a resulting hard sound quality, with 200 watts input.

COMMENTS

The Paradigm Titan sounded every bit as good as its measurements would imply.

Over much of the audio range its frequency response ranks among the flattest that we have measured from a speaker. Although frequency-response measurements do not necessarily define the sound quality of a speaker, in this case there was a good correspondence between the two characteristics.

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It is not unusual for a well-designed small speaker to sound smooth and well balanced, but it is less common for a small speaker to avoid sounding thin when the program calls for a healthy bass output. The Titan passed that test handily. Even though it cannot reproduce the lowest frequencies, it does such a skillful job with the ones within its range that the listener does not notice that all of the music is coming from the pint-sized Titans. If you close your eyes, they sound just fine, giving no hint of their size. The small size, in fact, gives the Titan a distinct advantage in imaging accuracy over many larger speakers.

We have heard a few (very few!) speakers with a single 6-inch woofer that can produce a similar effect, but they usually cost considerably more. Calling this speaker "Titan" is not as extravagant as one might think—it is truly a giant-sized value.