

# TECHNOLOGY

## Snapshot Product Reviews

### CAD TRION 7000 Studio Ribbon Microphone

The passive CAD Trion 7000 ribbon microphone offers a figure-8 pattern, ships in a sturdy aluminum case and comes with a shock-mount. This short mic with a bulbous top uses twin ribbon elements, and the nice thing is the \$479 list, although I've seen it priced as low as \$279, which is right where this entry-level mic should be.



The 7000 has a low-frequency bump (a few dB) from 40 Hz to about 150 Hz. From there, it flattens out until 4 kHz, where it starts diving, ending up -10 dB down at 10 kHz. Output impedance is 940 ohms, and as it's a ribbon this can fluctuate greatly when your source material approaches the ribbon's resonant frequency; a preamp with an elevated input impedance is recommended. (For more info on this, check out "Wes Dooley on Ribbons" at [mixonline.com/news/audio\\_wes\\_dooley\\_ribbons](http://mixonline.com/news/audio_wes_dooley_ribbons).) The bottom line: If you're loading down your mic by running it through a preamp with a lower impedance than the mic puts out, it will result in increased distortion and a thinner sound.

Like most ribbons, this mic can take a boatload of SPL, so I first used it on a kick drum. Placement was about four inches from the front head with a pop filter in front of it to protect the engine. I paired it with a Shure Beta 52 placed about four inches from the beater head inside the drum. The 7000 added a nice, round and compressed ribbon-like sound to the track. The top transient was shaved off as the ribbon moved

beyond the magnetic field—beautiful. This pairing was used on a number of different sessions with the same results.

I next used the 7000 to record a guitar through a Fender Supersonic amp. It was placed in front of the speaker where the dust cover meets the cone and was paired with an SM57. While the 7000 sounded a bit dull by itself, in combination with the SM57 it worked great, providing a nice bottom-end component that the 57 lacked as it starts rolling off where the 7000 starts boosting the bottom.

The Trion 7000 provides a great way for entry-level engineers to get into a ribbon, not to mention a nice, inexpensive extra mic to have in the arsenal for any studio at any level.

CAD Professional, 800/762-9266, [www.cadmics.com](http://www.cadmics.com).

—Kevin Becka

### MACKIE SRM450 VERSION 2 Active Sound Reinforcement Speaker

When Mackie introduced its original-model SRM450 at NAMM in 1999, the developers had no idea that it was to become one of the best-selling live sound speakers of all time. I've been using a pair of SRM450s for years now, and they've held up to the abuse of countless rock 'n' roll gigs while still having the delicacy for acoustic material.

At last month's NAMM show, Mackie unveiled the second generation of the SRM series, the 12-inch, two-way SRM450 V. 2 and the smaller SRM350 V. 2. The new versions are outwardly identical to their predecessors, other than the switch to a midnight blue (rather than original gray) in the molded polypropylene enclosures. All have side and top handles, 10 rigging points with M10 threaded inserts, pole-mount socket and wide-dispersion 90x45-degree HF horns, allowing the units to be used vertically as mains or horizontally as stage wedges.

Likewise, the rear panel is the same, with XLR thru and input jacks, wide-ranging line/mic gain pot, switchable low-cut filter and acoustic contour (smile curve), IEC power socket and an AC switch. Inside, Mackie has retained the 24dB/octave Linkwitz-Riley crossovers and onboard phase-alignment/EQ/time-correction functions. The big change is in the 300-watt amp powering the woofer, now a Class-D (switch-mode)

design resulting in lower weight. This is now paired with an (also lighter-weight) neodymium 12-inch woofer with a larger 3-inch voice coil. The 100W HF amplifier on the titanium-diaphragm compression driver is unchanged, still a Class-A/B type.

With the new woofer and Class-D amp, the SRM450 V. 2 is now a svelte 40 pounds, down from the 51-pound original, which I appreciated on my first gig, especially when placing the speakers on a tripod stand. On rock gigs, I was pleased by the SRM450 V. 2's sound, which is consistent with the original, except that the low end seems to have more punch due to the beefier woofer. The switch-mode amp had no problems keeping up, even with bass-heavy rock material. On acoustic shows with guitar vocal duets, the top end exhibited that same transparency of the originals, and there was no harshness in the 1.6kHz crossover point.

It doesn't happen often, but the SRM450 V. 2 is a sequel that's better than the original. Retail is \$899 each.

Mackie, 866/858-5832, [www.mackie.com](http://www.mackie.com).

—George Petersen

### PSPAUDIOWARE XENON AU/VST/RTAS Mastering Plug-In

Featuring the latest in adaptive envelope extraction algorithms, the Xenon mastering plug-in offers a two-stage limiter, integrated leveling amp, absolute intersample peak prevention and word-length reduction (requantization) using a triangular probability density





function with three noise-shaping options. The plug-in uses 64-bit processing throughout its signal path, handles up to 192kHz files, and works in Audio Units, VST and RTAS hosts running on PCs, PPCs or Intel-based Macs.

Xenon's first stage of limiting does most of its gain reduction depending on how fast you set the transient control (a kind of attack control). The second stage uses finite impulse response-based envelope detectors with look-ahead to ensure every single transient is detected and controlled. Switching on oversample prevents intersample peak distortion that is ultimately produced by D/A converters in devices such as CD players. A D/A's reconstruction filter may construe two or more consecutive full-level (and legal) samples to describe a waveform peak with an illegal over(s). This "over" often exceeds the subsequent analog section's dynamic range and distorts.

To compensate for gradual volume changes long-term, Xenon's switchable Leveler works before the limiters when the entire program is to be consistently the same level at all times.

Xenon uses mastering engineer Bob Katz's K-System ([www.digido.com](http://www.digido.com)) metering, measuring both true RMS and peak levels simultaneously, while also showing the crest factor or peak-to-average ratio. The K-System attempts to coordinate average recording levels and headroom with a standardized monitor level of 83dB SPL assigned to 0 dB. To accommodate the generally accepted standard amount of headroom used in broadcast (12 dB), CD production (14 dB) and film work (20 dB), all three K-System metering variants or scales K-12, K-14 and K-20 are available. To calibrate your

monitoring system, an onboard pink-noise generator produces noise at 0dB RMS level appropriate to the chosen K-System scale.

I used Xenon on the 2-bus in Pro Tools in place of my usual mastering plug-in pair: a bus compressor followed by a limiter. I tried Xenon on many different songs, from soft and mellow acoustic to metal rock to pop R&B. I used Roger Nichols' Inspector XL plug-in to monitor

the number of three-sample clips, "over" incidents and hidden clips. From both empirical data and listening tests, I concluded that I could get any mix louder with fewer artifacts and clips with Xenon—and this was without engaging the envelope oversampling feature in the first limiter stage. Turn that on and you can crank into the world of hypercompression without worrying about intersample peaks, clips or illegal overs—ever!

At more reasonable (and better-sounding) levels of bus compression, I used the output meter oversample function (different from the previously mentioned envelope oversampling feature) to "estimate" intersample peaks that the D/A's reconstruction filter might render as distortion. If the output meters go red, you can decide whether to reduce output or click on envelope oversampling.

Xenon makes mastering-style 2-bus processing a breeze with transparent control and important assurance against illegal peaks and distortion. At \$249, Xenon can exceed (and now replace) the performance of much more expensive combinations of plug-ins in every way.

PSPaudioware, [www.pspaudioware.com](http://www.pspaudioware.com).

—Barry Rudolph

## PRIMACOUSTIC RECOIL STABILIZERS Studio Monitor Decouplers

We use a variety of acoustic materials—reflectors, absorbers, diffusers and bass traps—to change a room's character, but there have been few such products created to enhance the performance of monitor speakers. So when Primacoustic announced its Recoil stabilizers, I was intrigued.

Recoil is a passive device that provides a stable base to reduce the recoil caused by the forward energy of the loudspeaker motion while eliminating disruptive resonant coupling from the loudspeaker to the stand. Conventional speaker designs move air using a cone, creating a piston-like forward motion modulated by the amplifier's signal driving a voice coil within a magnetic field. Along with this forward motion comes a recoil as the cone springs backward. And vibrations within the speaker enclosure can be transmitted to other surfaces, through stands, shelves, etc., causing unwanted resonances. One method of decoupling speakers involves placing a foam pad under the monitor cabinet, which isolates the enclosure, but such a spring-like surface can actually magnify the speaker's motion, resulting in image smearing.

The Recoil stabilizer attacks this problem by using a high-density urethane foam base for isolation, combined with a heavy laser-cut steel plate layered above the foam and then topped with a nonslip neoprene pad. By applying a substantial mass to the monitor/isolation combination, Recoil offers isolation, with vibration control of the speaker itself.

In A/B comparisons using a variety of studio near-fields—Mackie HRM8s, Meyer HD-1s and Dynaudio Air-6s—the difference was clearly discernable. In every case, the stereo soundstage was improved, as was the reproduction of HF transients. Recoil's secret is nothing more than basic physics: It's all about mass. At a retail of \$99.95 each, Recoil stabilizers add a noticeable measure of clarity for serious listening. I'm impressed.

Primacoustic, dist. by Radial Engineering, 604/942-1001, [www.radialeng.com](http://www.radialeng.com).

—George Petersen ■

