



BY DAVE MARTIN

# Earthworks SR 40

This mic is useful, flexible—and hears better than a bat

The folks at Earthworks continue to explore the possibilities inherent in their original QTC1 design (reviewed October 1998), finding new applications for their ultra-small mic diaphragms that are fine-tuned for better suitability in specific applications.

## The design

The latest offering from the New Hampshire-based company is the SR40, a cardioid microphone with a wide frequency range and fast impulse response; while it's not designed to be used only as an overhead for drums, this is certainly an application that seems appropriate given the specs. The SR40 has a 30 Hz–40 kHz frequency response and can handle up to 145 dB.

The polar response of the SR40 is quite even, and though the amount of rejection from the rear varies a bit with frequency, the pattern overall is quite smooth throughout the audio spectrum—in fact, its off-axis response is more even than many microphones' *on-axis* measurements. The Earthworks site offers frequency response and polar response charts along with an impulse chart for all of its offerings.

Earthworks is quite proud of the impulse response and diaphragm settling time of its microphones—essentially, how fast the microphone's diaphragm responds to an acoustic signal and how quickly it stops vibrating after the signal stops. The mics' tiny (9 mm) diaphragms are certainly the main reason for the fast impulse and settling times; Earthworks states that this response is made even faster by appropriately designed electronics.

## In use

Around the drum kit, the SR40 showed a couple of interesting characteristics, especially when A/B'd with my usual methods of recording the kit. When used as overheads, the SR40 mics are quite detailed in the high and mid frequencies; they don't seem to pick up nearly as much low end as my usual large-diaphragm mics, but they exhibit a sparkling high end that worked very well with the Meinl Cymbals used with this particular kit.

There is a potential downside to overhead mics with a low-frequency roll-off—it makes them somewhat less suitable for minimalist miking techniques that don't mike the toms individually. When used above the kit without tom mics, the SR40s delivered

## When is a roll-off not a roll-off?

### Earthworks responds:

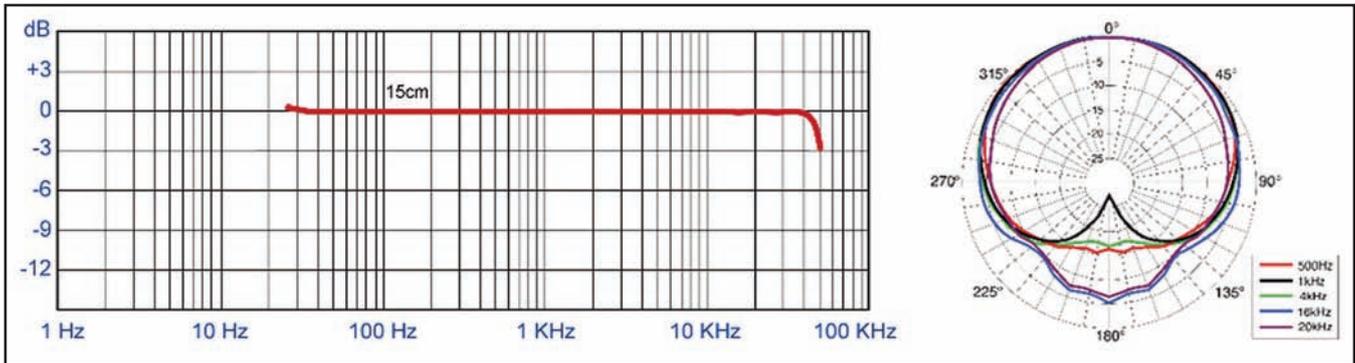
"Dynamic mics exhibit a more pronounced [proximity] effect due to their inherent lack of sensitivity. Larger-diaphragm mics also tend to have a more pronounced proximity effect. The SR40 also exhibits this effect from around 6" and closer, as stated, but the frequency response tests very flat from 40 kHz down to 30 Hz from outside the 6" proximity boundary."

"Being flat to 30 Hz, the SR40 should be picking up the true flat response of the entire kit. Your "normal large diaphragm" mics would have an exaggerated or boosted low frequency response, not true to the source. Although this might have some pleasant benefits, it cannot be considered a true representation of the source. Also, having a mic with a flat response still allows the use of eq to obtain the desired result without unwanted artifacts. What the reviewer calls a "natural roll-off" is the lack of coloration and bass boost that other mics exhibit. That's not a bad or a good thing, just to be clear."

One item should be pointed out to those who like to look at graphs and such: the SR40's frequency response is pretty darned flat—when the mic is 6 inches from the signal source. This means that the usual proximity effect (the low-frequency bump that directional mics have when used close to a signal source) is already accounted for, so when the mic is used at a distance, frequencies below 250 Hz are attenuated to a greater or lesser degree. [See the sidebar for Earthworks' response to this statement—Ed.]

a sound of the kit that was a bit thin for contemporary pop or rock. However, the upside is that tom resonance—we usually call it 'tom hum'—is minimized in the overheads. Since I almost always have individually miked toms, the relative lack of low end is not an issue for me.

I've been using a pair of large-diaphragm tube mics as overheads for the last few months, and while I found the SR40s to sound very different, that difference was quite nice; I would likely prefer them in applications where I wanted the highest clarity from the overhead



### SR40 Frequency Response and Polar Pattern (charts courtesy Earthworks)

mics (and when the toms are miked individually). An added bonus from the SR40s: despite the cardioid pattern, these mics also did quite well at representing the sound of the rather large room where I record drums.

I also liked the sound of the SR40s on snare—again, when the goal is a present, ‘poppy’ snare sound rather than a ‘big’ snare drum. When I used these mics on toms, they didn’t particularly suit my taste, since for most pop, rock or country tracks, a big tom sound works best, and this means that the proximity effect is my friend. The SR40 was clean, but it emphasized the stick rather than

the sustain I was looking for. Again, this might be perfect for a jazz kit, but it didn’t work in the applications in which I tried it.

The SR40 is also an excellent percussion mic; I used it on tambourines, bongos and shakers with great success. Placing the mic 6" from the source provided a bit more low end (proximity effect again), but even with the mic 18"–24" above the source, the resulting recording was very natural sounding, and fit well into a track.

### Summing it up

The Earthworks SR40 has a very natural sound; it’s a clean and very articulate microphone. With the caveats mentioned above (the natural roll-off that occurs when the mic is used at a distance), it would definitely have a place in the well-equipped studio. Both single microphones and matched pairs are available. While it isn’t an inexpensive mic, it is quite good at what it does. ➤

**Price: \$1295 • More from: Earthworks, Inc., [www.earthworksaudio.com](http://www.earthworksaudio.com).**