

NADY RSM-2

RIBBON MICROPHONE

BY SCOTT DORSEY

I looked forward for quite a while to getting one of the Nady RSM-2 microphones, because the prospect of a ribbon mic at such a low price point was really a big deal. When it arrived on my doorstep and I opened the box I was really quite amazed, because if I had to review this microphone in a single phrase I would describe it as an homage to the AEA R84 (November 2003).

Opening the package, I was greeted with a padded storage bag absolutely identical to the AEA bag. I have to say that this is a great thing, and I would love to see more manufacturers adopting this sort of package because it is both very convenient and very effective at protecting the mic in shipment. But I was a little more surprised when I saw how close the microphone itself was to the R84 in little details, like the design of the yoke and the nifty little cable clip built onto the side of the yoke. The grille is different but the overall motor design, case design, and body are very much the same, as are a number of paragraphs in the manual. Since the R84 was very carefully designed to be easy to manufacture, it's really quite understandable to take it as a good model for a design.

In preliminary listening to the microphone on a voice, the null was audible close up to the microphone but it seemed much better in the midrange than at high frequencies.

Three feet away, the null seemed to almost disappear, and this rather limits the utility of the microphone since a tight null is one of the huge advantages of any microphone with a figure-8 pattern.

Overall vocal timbre was reasonable, although there were a number of odd peaks in the 1-3 kHz region which were definitely not present in either the original AEA or the (ten times more costly) RCA 77DX microphone I tend to use as a reference ribbon, and there was a bit of a presence peak which did not exist in the original. It did sound like the top end response was a bit ragged from the usual keychain jingling test. Noise floor seemed a good bit higher than that of the RCA 77DX, and the output lower—it required 60 dB

of gain on my bench preamp to get reasonable levels on a spoken vocal. Still, by the same token it was a lot better in both regards than my old Shure 315 ribbon.

But it did sound like a ribbon mic, and let me emphasize here that anything at this price point that has even a little bit of the classic ribbon mic sound is a useful tool in the studio.

Listening

I did a number of listening tests on some recent sessions, each time keeping the old RCA 77DX and an RCA BK-5 around for reference purposes.

On a voiceover job, the Nady did quite a respectable job of impersonating a classic ribbon mic. The midrange presence and forwardness was all there, and while some of the midrange peakiness did add a more constricted sound to the voice, it was entirely usable. The presence peak was actually rather handy in this application, and I could turn the mic a bit to the side to reduce it if that was an issue.

On a trumpet, it was very smooth and clean and gave a nice blatty sound without much trouble. On the whole I think I prefer the 77DX on the trumpet if only because of

A real ribbon mic at an almost unheard-of price

the lack of presence peak, but that's more of a judgement call than anything else. It didn't perform as well on a close-miked fiddle, with some of the midrange resonances tending to make the fiddle sound thinner than the RCA mic did.

Trying it on a guitar/vocal combination with the null positioned to keep the guitar out of the vocal mic, I found the poor 90-degree rejection of the microphone really made this technique impossible. This is a shame, because it's one of the more handy reasons to keep a ribbon mic around.

I also tried using it for area-miking a choir, and the pattern issues became more evident there, with voices on the side sounding different than those in the center. But on that same session I was pleasantly surprised at how well the occasional handbell sounded; the Nady gave a very pleasant and rounded sound to each note.

I briefly tried running this mic into the input of a Mackie 1604 VLZ, and found that it had to be used wide open and the preamp tended to get a very grainy sound. This was not a good combination with the midrange peaks in the mic and tended to make for a very unpleasant quality. Like almost all ribbon mics, the Nady really does need a quality preamp with a low input impedance and a whole lot of gain in order to perform well.

Measurement

The ribbon mic consists of a thin corrugated aluminum ribbon (in this case what appears to be capacitor foil) suspended between two magnets. As it moves in the air, a very small voltage—but a high current—is developed across it. This goes into a very high-ratio step-up transformer, and making a transformer with such a low primary impedance is extremely difficult. We can't measure the ribbon assembly itself without the transformer, but we can measure the system as a whole and we can measure the transformer in isolation to get an idea of the performance of the individual halves of the system.

I did all the usual measurements on this mic, starting with an impedance sweep and a frequency response sweep, and at first I was a bit alarmed because the resonant frequency of

the ribbon seemed to be different in the two plots. Then I realized that I had done the impedance test with the microphone lying on the bench and that for the acoustic test, the mic had been upright. The ribbon resonance point changes somewhat with the position of the mic, which is a little odd.

There are, as I mentioned earlier in the listening tests, a bunch of resonances in the 1–3 kHz range which are probably a combination of transformer resonances and body resonances from the grille. There is a considerable presence peak which results from the perforated metal puff filter (and which is at a very different frequency than the pole resulting from the R84 puff filter, since the perforation pattern is different). Low-end response drops off noticeably around 35 Hz, probably due to transformer effects, and the top octave looks kind of ragged (which is not atypical of ribbons).

The square-wave response of the transformer was actually better than I had expected. It's a little touchy about loading, so this mic is going to sound much better into a high-grade transformer-input preamp than it will into a typical inexpensive console. The low output level is going to make cheap console preamps that much more of an issue, too.

I got the best square-wave response with about an 800 ohm resistive load on the transformer. It is clear that the transformer (and the wiring to the transformer, which is not fixed into place and can shift around in the magnetic field) is a significant distortion source here. Primary resistance of the transformer was very high for a ribbon mic, and the wiring to the transformer again was fairly high-resistance, which may account for the higher noise floor.

I do think that the transformer is the real Achilles' heel of the design, but again this is not unusual for a ribbon mic because this type of transformer is so difficult to build. There are a lot of vintage ribbon mics out there from Shure and Altec with worse transformers than this mic uses, and many of those mics sell for far more money than the Nady.

Conclusion

This microphone is no RCA 77DX. But for the price, it doesn't have to be. It's an entirely usable ribbon mic at a phenomenally low price, and if it has some problems you have to look at the price and wonder how Nady did as well as they did considering that price point.

Like all ribbon mics, the RSM-2 has a very low output, and the preamplifier loading is an issue, so it will really take a high-grade transformer-input preamp to make it perform well. This is kind of a shame, since as a low-cost microphone it is mostly aimed at buyers who won't have access to good preamps. But if you budget for a good preamp as part of the package, the RSM-2 can still get you into the fun of using a ribbon mic for a very competitive price. ➤

Price: \$249.95

More from: Nady Systems, Inc., 6701 Shellmound St., Emeryville, CA 94608. 510/652-2411, www.nady.com.

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