

## Ask the Techie

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### Why doesn't my expensive mic make me sound good?

**Probably the most often asked questions in voice-over technology are microphone related**, and for good reason. The microphone is the most important piece of equipment in your studio, besides your own vocal chords.

I get questions such as:

- What microphone should I buy?
- How much should I spend?
- Do I need to upgrade my microphone to compete?
- Should I have different mics for narration, promos, and commercials?

But one question I almost never get is the one most should *really* be asking:  
**Am I using my microphone correctly?**

First lets get this out of the way. Yes, some microphones are not suited for professional voice recording. If the noise floor is too high (that hiss you get on your tracks), the sound is flat and lifeless, or the fidelity is poor, perhaps it's time to investigate a better microphone. If all of that seems to be on par, the next thing people tend to look at is the mic preamp to solve problems. Going right for the de-esser, EQ, or compressor tends to be a common mistake, just acting as a band-aid. I'll be straight with you: The pre-amp built right into your Mackie mixer is not what's getting in your way.

Chances are the problems you face with your recorded sound have far less to do than you might think with the model of microphone or preamp you use. Other factors can have as much or more of an effect on your sound, and **one of the biggest is mic placement**. In this article we'll explore some different placement techniques to get the sound you hear in your mind; that perfect studio quality recording you seek.

Did you know you can make a \$100 dynamic vocal mic, like the ever popular Shure SM58, sound better than a \$3000 Neumann U87, the diva of the voice-over mic world? Last year a blog post popped up discussing the findings of a studio who conducted a blind A/B test of the two mics. They created recordings of the same voice reading the same copy on the two mics, kept the models of the mics a secret as to not bias the test, and let listeners evaluate the recordings with one basic factor in mind: Which recording sample sounds more expensive? In this particular case, **listeners voted overwhelmingly for the SM58**. The \$100 utility mic beat out the \$3000 German technological wonder! It was made abundantly clear that the point of this comparison was to demonstrate how important mic placement is to a recording.





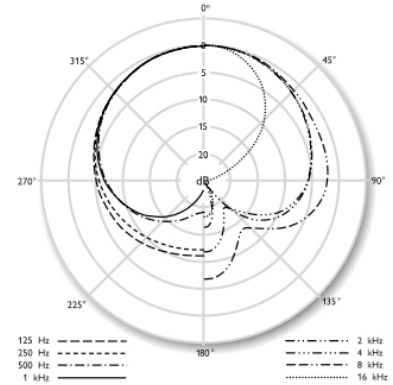
Without getting too geeky, I'll explain how the test was setup to manipulate the listeners to choose the cheaper mic. No, it wasn't an effect, EQ, mic preamp, or other electronic means to modify the sound. It was simply the placement of the microphone. An interesting property of cardioid pickup pattern microphones, the design most popularly used to record voice, is **proximity effect**. Once the microphone gets within a certain distance from the sound source, in this case your mouth, low frequency (bass) sensitivity starts to increase. Get right up on the mic and it makes your voice sound deeper, boomier, and sometimes muddled and less clear.

Most of the time in voice-over recording the objective is to capture the voice as accurately as possible. That's when proximity effect can work against you. Experienced voice artists know how to use proximity effect to their advantage, and they also know when it just gets in the way. Want to sound dark, ominous, and mysterious? Bring your mouth up close to the pop screen, but speak more softly and keep hard consonants like P's and T's under control as to avoid **plosives** (the geek word for the popping sound you get). Want to sound clear, clean, and natural? Back that mic away until the proximity effect no longer becomes noticeable. Back too far away and the mic starts to pick up too many **early reflections**, the sound of your voice bouncing off nearby surfaces. This tends to color the sound in a negative way, creating that "boxy" sound people associate with recording inside a small booth or closet without enough acoustic treatment. The effect is the result of **comb filtering**, which creates unintended and severe EQ dips or bumps at certain frequencies.

As mentioned earlier, plosives are a real problem when speaking too closely to the microphone. They are caused by puffs of air slamming into the ultra-sensitive diaphragm inside the microphone grill. The **diaphragm** is designed to sense changes in air pressure created by the sound waves your vocal chords, tongue, and mouth produce, which is why it must be so sensitive. While pop filters can do a very effective job reducing or eliminating plosives, I often find moving the mic a few inches can make all the difference. As long as the diaphragm is out of your air stream, you can't pop it. Try placing your mic either off to the side 3"-4", but rotating the grill so that it still points toward your mouth. You'll be amazed how the sound is still very clean and natural, even though it's not directly in front of you. Even better, if your mic is suspended from above, raise it 4"-8" above your mouth and tilt the grill downward toward your chin. This allows it to not only avoid plosives completely without the need of a pop filter, but also pickup some of the sound that emanates from your resonating chest cavity. I find it works great with almost any sensitive condenser mic, especially with shotguns.

Another issue you can fix with a mic position adjustment are prominent "S's" or **esses**. Rather than futz around with a de-esser effect in your software or mic preamp, a mild essing problem can be handled by rotating the mic's diaphragm slightly off axis. What I mean by this is in the case of a side address (speak into the side) studio condenser microphone, such as a Neumann U87 or Harlan Hogan VO:1-a, simply rotate the mic inside the shock mount so the diaphragm is no longer pointed directly at your mouth but

toward your cheek or ear. You will notice that the highest frequencies (treble) start to become reduced, and your esses less pronounced. This works because cardioid mics by design don't have the same frequency response **off-axis**, with the higher frequency sensitivity the first to decrease. Keep turning the mic until you get the desired effect. Too much and you'll begin to sound muffled, so keep it reasonable. If your essing is severe, you might try a de-esser effect, or even a microphone with less of a treble frequency "bump", as many condenser microphones are designed with to make them sound "brighter". Notice in the **polar pattern** diagram of the U87 that as the sound source moves around the mic, certain frequencies lose sensitivity faster than others, as indicated by the dashed lines. You can view a larger version and read more about the U87 here: [https://www.fhmusictech.com/wiki/Studio1100:Neumann\\_U87](https://www.fhmusictech.com/wiki/Studio1100:Neumann_U87)



From what I've shared with you, I am sure you can come up with ways in which to make a U87 sound pretty lousy! But what I hope you found useful is how to make that basic microphone sound much better. I've heard a \$40 hand held dynamic vocal mic do a surprisingly good job for a voice-over artist when placed correctly. In fact even the tiny cheap microphone element inside an iPhone can even do a good enough job for an audition when used correctly! Just keep it out from in front of your mouth, hold it to the side of the air stream a few inches away, and surprise yourself.

Got an idea for my next "Ask the Techie" column? Drop me a note on my website, [vostudiotech.com](http://vostudiotech.com).