

# Recording Vocals

## Microphone Selection

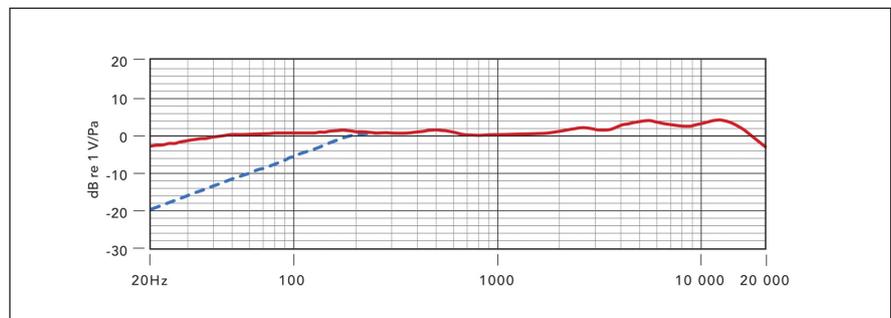
The mantra of recording engineers everywhere is 'Get it right at the source.' Trying to 'fix in the mix' tonal balance, dynamic range, separation and noise is almost always detrimental to the quality of the audio. 'Getting it right' is of course a fairly arbitrary designation. However, knowing how to capture a neutral recording in a more or less purist manner is the standard from which to depart to do more interesting things. When recording voice and speech, all of this is especially evident since generally we are naturally capable of finely discriminating between sounds.

There are three main points to consider and there is a balancing act between them. Refer to the document on microphones found in the Slade Knowledge Base for more details.

## Frequency and Transient Response

NT2-A Frequency Response (Cardioid)

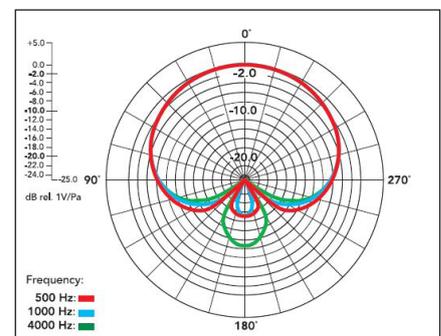
To record speech it is common to use a large diaphragm condenser, such as the Rode NT2-A that lives in the sound booth in the large sound studio. They are more sensitive and have less self-noise than their small-diaphragm kin. Compared to dynamics, they have a wider and flatter frequency response, and respond to transients much faster, since the diaphragm is much lighter.



The main point is that none of this matters unless you audition the source. A condenser might detrimentally exaggerate a very sibilant and breathy voice, for example, so a dynamic might be more suitable. All microphones are voiced to a certain extent and have an individual character, which may or may not suit the voice being recorded. This can only be discovered by listening.

## Polar pattern

A polar pattern defines the directional response of a microphone in 3D space. If maximum separation between the voice and other sound sources or room reverberation is required, pick a tight directional pattern such as one of the cardioid variants. If a little natural reverberation is in order, or there are many voices, perhaps a figure of eight or an omni-directional pattern would be best.



NT2-A Polar Pattern (Cardioid)

## Microphone Placement

This is the key category and to some extent dependant on mic choice. The main points to consider are distance and angle.

### Distance

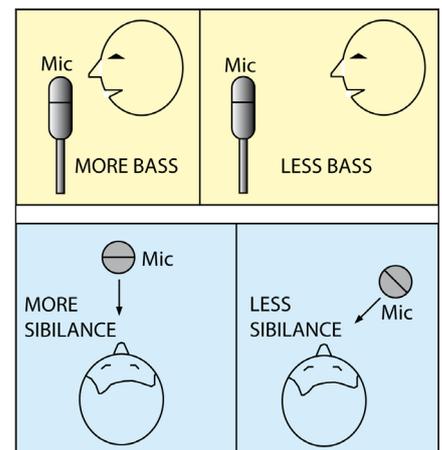
High frequencies have less energy than low, so consequently diminish in amplitude at a greater rate with increased distance. However, directional microphones also exhibit proximity effect, a phenomenon whereby low frequencies are amplified with decreased distance of the mic from the sound source.

Close miking a source with a directional microphone therefore has the effect of increasing transients and both the very high and low frequencies. The voice consequently can sound fuller or too boomy, airy or sibilant, intimate or a bit masticatory, depending on the source and preference. Increasing the distance will flatten out the sound, becoming more natural, at the expense of separation of the source from the surroundings. A good rule of thumb is to start with the mic around 6 inches from the performer, and increase or decrease the distance to get the desired tone.

Omni-directional mics do not exhibit proximity effect and often sound the most natural. The distance can be varied to change high frequency detail without fear of boominess. Of course, the trade-off is that the mic will pick up sound from everywhere.

### Angle

Since the polar pattern of a directional microphone is frequency dependent, the angle of the mic relative to the source can be varied to change the tonal character of the voice. For instance, high frequencies are most present on-axis, so the mic can be tilted away a little to reduce sibilance and glottal sounds.



In general, what are the characteristics of the performer's voice and what is their bearing when speaking or reading a script? Is their voice thin or rich? Do they sound a bit nasal? Do they move about a lot? Do they look down if reading? Placing the mic higher or lower or to the sides can accentuate or diminish these qualities as desired. Experiment with a number of performances and listen back to different mic arrangements to judge critically.

In summary:

- » Microphone choice and placement are more critical than processing for achieving natural voice recordings.
- » Variables to consider are microphone frequency response, polar pattern, distance and angle (up-down and left-right) from the performer, and the room acoustics, including any source of wanted or unwanted noise/ambience.

- » In general, omni-directional polar patterns provide the most natural result at the expense of separation.
- » Start with a large diaphragm condenser in a dead room about 6 inches away from the performer.
- » If the room reverberation or other noise is too intrusive, or proximity effect is desired, use a cardioid variant pattern.
- » Vary the mic-performer distance to increase or decrease fullness and change the transient response.
- » Vary the mic angle to shape the tone further and deal with the performer's bearing.
- » Try to change only one variable at a time when experimenting in order to isolate the problem.