

Marty McCann from Peavey, talks about lapel microphones

"What EQ Settings/curve would you recommend for a lapel mic in a difficult environment such as a reverberant church or hall?"

I would recommend a Cardioid pattern lapel mic, even though the pattern is altered when placed on the chest. Some put the mic too far down on their chest. The user should drop their chin to their chest and put the mic directly below that point. The farther down from this point results in even more mid-range chest cavity resonance that colors the sound. This chest cavity resonance and the gain before feedback is a constant battle with lapels (Wireless or hard-wired).

Too often the church customer (who is often rather technically challenged in the first place), tries to resolve the EQ'ing of the lapel mic with the overall main system EQ. This of course is a mistake, because of how it will adversely affect the overall systems performance, i.e., normal vocal microphones and instruments taken direct are negatively affected by the hacking away of the main equalizer in order to chase away frequencies that are problems for the wireless lapel mic only. A dedicated EQ (inserted into the wireless Mic's channel) is the only way to begin to even get any kind of a handle on this application. Even then due to the drastic amount of Mid-range cut necessary to get intelligibility out of the lapel Mic system (this is before feedback suppression), there is often not enough cut remaining in this region for further control of feedback.

Over the years, I have addressed this problem in high visibility, high \$'s installations by either using a parametric along with a 1/3 octave to tweak the system, or more recently (since we no longer manufacturer a parametric), I specify 1/2 of a 2/3 Octave EQ and a 1/3 Octave EQ to process the lapel Mic's channel.

Now here is where the problem is further complicated. In many installations, the lapel Mic is used by more than one individual (sometimes several). Due to the individual nature or timbre of peoples speaking voices, along with the fundamental resonance's of each voice (that is determined both by the vocal chords and the size of the chest cavity), one size does NOT, fit all. The pastor or CEO doesn't understand this at all. At times when it can be determined that certain designated people will be using the lapel system, I have specified 2 (yes 2) CEQ-280a programmable Equalizers, with stored setting for various presenters or speakers.

Now down to the EQ process. Too often the less experienced system integrator or operator will just ring out the mic for feed back. This results in less than desirable tone and intelligibility. EQ for intelligibility first then go for feedback suppression (once again you probably need more than 1 EQ to accomplish both effectively). On the average the required mid-range notch is centered somewhere from 315 to 630 Hz (this is the individual variable) depending on the person speaking. This notch can be two to three octaves wide at the -3dB down points (depending on the lapel mic and user). Because of the small Electret diaphragm and its proximity to the users mouth, there is often more energy above say 8 kHz than is necessary. A variable high cut is a good tool here (that's why I prefer the EQ-31FX over the Q-31FX, the variable low cut is also handy here). Some people's voices exhibit a strong sibilance in the annunciation of Ssss sounds. This of course is mainly at 6.3 kHz on a 1/3 Octave EQ.

When the budget won't allow for two equalizers, one technique is to first start with all of the EQ sliders at the top (this is not a good idea with some cheaper filter designs due to the ripple or poor summing of the filters), then to EQ for tone, followed by appropriate cuts for feedback suppression. With some cheap EQ's this technique would also result in a poor S/N ratio.

While on this subject, we have had tremendous results with the performance of our wireless headset mic. Because of its positioning away from the chest and close to the mouth, it needs VERY LITTLE EQ, and can often suffice on the channel strip EQ on a decent mixer. The problem is a lot of people think they look like a Dork with the headset on. In my case, I have overcome the dorky feeling because the end result is soooo much better performance.

Also, some theater productions tape the lapel Mic over the actor's ear or into their hairline (using flesh colored surgical tape). This works well with some of today's smaller Mic elements.