

Technically Speaking

Wireless Microphone Basics

Wireless microphones have become an indispensable tool. Prices have dropped dramatically. Even with modest a budget one can now afford going wireless. Along with the increase in the use of these systems has come a corresponding increase in the number of service calls related to their use. A quick review of a few fundamentals could save you the price of a service call.

With proper precautions, wireless microphones can be a reliable alternative to traditional wired microphones. Although technical advances in wireless technology have improved the quality and performance of wireless systems, they are still sensitive electronic devices and need to be treated with great care. There are a few ground rules you will need to follow for the best possible results.

By far, we get the most calls on malfunctioning wireless systems because of dead batteries. Wireless systems run on batteries and keeping a few simple things in mind can save you the embarrassment of silence during an event.

One - Use a new battery every time you use the wireless. It's often an overlooked expense when buying a wireless microphone system, but just like your car didn't come with gasoline, your wireless transmitter didn't come with batteries. Go ahead right now and add the purchase of batteries to your church budget. Replace them every week and if they are going to be on more than a few hours during that week change them every 4 or 5 hours. Don't be lulled into thinking that you only use them an hour on Sunday morning and you can get by changing them once a month. Unless you have a better memory than mine I guarantee you with all the other things you have to do in your life that you will forget to change the batteries unless you get in the habit of doing it once a week. Do it every time you put a new cassette tape in to record the service.

Two - Don't buy the cheapest battery. Wireless transmitters consume large amounts of electricity and only quality alkaline batteries have the necessary power. All car batteries are 12 volt but only the more expensive ones will last you through the winter. It's the same with 9 volt batteries for your wireless. Our official recommendation is to stick with either Eveready Energizers or Duracell Copper Tops.

Three - Don't use rechargeable batteries. They quite simply do not have enough umph (a highly technical term meaning power) to properly power your wireless. If any one has figured out how to cram a good NiMH cell phone battery, or a car battery for that matter, into that tiny little nine volt battery hole on a wireless microphone, please let me know.

Four - Be careful where you buy your batteries (you never know where that battery has been.) Only buy your batteries at large stores that sell a lot of batteries and you'll have the best chance that it will still be fresh. Don't trust the date codes placed on most new battery packages they only guarantee 80% or so of the battery power will remain by that date which is not enough power for your wireless to function properly.

Avoid Other Radio Frequency (RF) Sources - All kinds of things give off RF. Some of the more obvious things are Walkie Talkies, Cellular phones and nearby TV or Radio Stations. Other not so obvious things are computers, CD players, DAT machines, keyboards, florescent lights and other devices such as light dimmers, other wireless receivers & transmitters (receivers have circuits that give off RF) and motors. Some of these are easy to avoid - just keep them away. Others however, can really make things difficult. Well there are a few tricks we can try:

- 1) Make sure you have fresh batteries. Have we said yet how important good quality fresh batteries are yet?
- 2) Try moving antennas. The antennas should be in a direct line of sight and above the transmitters. Also try to keep antennas out of the same plane. Try one at a 45° Angle, perpendicular to the stage and the other at a 45° Angle, parallel to the stage. Avoid placing Antennas near large metal objects. Also try adjusting the length of the antennas to see if

your signal gets stronger or the other signal gets weaker.

3) Avoid having two transmitters and one receiver. Many churches try to economize by having both a lavalier and a hand held microphone for one receiver. Only one of the transmitters will work at a time with one receiver and even though you may not have planned on using them at the same time I guarantee that at some time someone, not knowing any better, will try to use both.

4) Have us coordinate the frequencies if you are using multiple systems in the same building.

5) Keep the receiver or at least their antenna's down near the area that the transmitters are being used and not on the other end of the building up in the sound booth.

6) Only use systems with dual-diversity receivers. They can be easily identified by having two antennas.

7) Turn on the transmitter first before the performance and then do not turn it off until after the performance. This gives the receiver a good strong matched signal to lock on to. If you need to turn it off during a performance then only use the audio mute switch (never buy a wireless system without an audio mute switch on the transmitter) or have the sound operator turn down the volume for that channel on the mixing console.

8) If your transmitters get too close together, sometimes they can glitch. You will probably notice this in setting up and testing the units. This may also occur when two actors get too close together. Try muting one of the microphones during these scenes; one microphone will probably pick up both actors. It is a good idea to rehearse with wireless units on so you can find these possible problems and change blocking if needed.

9) If you are located near a powerful TV or Radio Station you may be in trouble. Strong stations can be hard to override when they are right on top of you. Make sure your wireless units are compatible with local stations. Unfortunately, even with strong FCC regulations, it is difficult to control certain things in our wireless world.