

It is time to RE-THINK coverage

And GET CONTROL of what gets into and out of wireless systems!

In a standard studio/stage set-up, a pair of antennas are intended to cover the space. In early spectrum times, when the competing RF in the environment was not as severe, this was basically adequate. Good performance and coverage could be achieved, with occasional “dead spots” where a fade or drop would happen did occur, but this was rare.

As spectrum got more crowded, and as more and more simultaneous channels were being used, occasional drops or dead spots became a little more common. The solution may have been to re-do a frequency coordination list, or to try and add additional antenna coverage. Adding additional antennas helped— somewhat – but it also hurt. Every antenna placed added to the reception/collection of the unwanted signals in this crowded spectrum. Going through combiners and distribution compromised signal to noise and gain.

The sources of unwanted RF interference in a traditional set-up are many: direct conflict from studio to studio and even building to building leakage; equipment “spurs” from local devices such as LED panels, displays and other electronics; intermodulation products with other wireless gear operating in different frequency ranges; EVERYTHING in a traditional set-up adds up, and then enters the antennas. Of course, we now see it is common to add additional filters to help mitigate these problems. But, this is a fluid situation being solved with TEMPORARY and expensive measures!

Certainly, a studio/stage “dead spot” may be resolved with an additional antenna, some filters, changing frequencies, or re-setting the gear. However, the minute even a single additional transmitter is added to a space such as this, the entire process must be started over. Add to this the changes that occur naturally over time as additional frequencies go into use in the surrounding rooms, buildings, or the ambient RF environment, and any person responsible for maintaining reliable connectivity at a site will realize that we are quickly approaching a time when it will be impossible to maintain reliable control in a specific environment/location via the current methods of carrier-based RF into diversity antennas.

The wireless microphone business has long benefitted from utilizing the devices, technologies and techniques that were first developed for the mobile device /cell phone market. The rapidly sky-rocketing trend of mobile wireless devices offering end users the ability to view content, communicate, connect and control – anytime, from anywhere, on any device – has driven some major philosophical/operational changes to technology. These changes have been so effective that some now even predict that “Wi-Fi” as we know it today will become a thing of the past. Companies are creating extremely effective new delivery networks. How are they doing this? By Re-thinking how cell towers operate and how mobile content gets delivered. Instead high-power towers dominated by a few mobile telephone companies, one significant change has been made to locating more towers with lower power to cover smaller area multi-purpose “cells” with better density. Why? For one reason, by covering more densely with lower power, there is more control over their coverage and performance. The ability to react/cover a specific contour or construction environment with evenly distributed signals is far more effective than simply “spraying a wide area” with limited large, higher-power towers.

This method works so well it has resulted in a significant improvement in performance and access, and has changed how people in today's society utilize and consume mobile content, control and communication. If wireless microphones are to remain functioning in the increasingly crowded spectrum, it is time to re-think coverage just as the communications companies have. The same increase in performance results when this concept is applied to the coverage of a studio or venue for wireless microphone use. Reducing power significantly, and creating the same "mesh" method that has resulted in cell success is key to wireless microphones being able to successfully operate in the future.

The Alteros GTX Ultra Wideband Wireless Microphone system gives end users the precise coverage and control they need to remain operational no matter the future spectrum problems. Each GTX32 transceiver provides transmit, receive, antenna and processing for a full 24 channels of audio. Traditional wireless systems are limited by a one-to-two (diversity) transmitter to receiver scheme. This is no longer necessary or applicable in the GTX system. The GTX32 transceivers may be placed to fill a space much like one would place lights to create even lighting levels. If operating in a smaller space, perhaps one that would require 6 or 8 GTX32 transceivers for full coverage, there will still be a full 24 channels of transmitter/audio reception and processing present, where as a vintage wireless system would still require 24 receivers (no matter how many antennas or where they are placed) in order to accomplish 24 channels of simultaneous transmitter audio. Simply place the GTX32 transceivers in the space, connect the Cat-5 cable to a GTX3224 main control unit and that's it! Full 24 channels of audio with fully redundant reception on every GTX32 transceiver. This provides a level of operational security not possible with legacy systems.

Unlike in a traditional set-up, a compromised "fade" signal is not possible. If for some reason there is a "dead spot," that spot will NOT be due to any type of interference effects. It can be simply resolved by placing another GTX32 transceiver in a location near to the troublesome spot. No other thought is needed. No expensive filters, no expensive cables, no re-coordination and no performance effects on the entire system. Adding another transceiver (up to 32 can be used with a single GTX3224 control unit), is quick, simple, precise, inexpensive with no negative performance effects.

Once you have coverage in a location, you are done. Additional transmitters (up to 24) can be added at any time with no system, wiring, coordination or other changes needed. The coverage remains solid and reliable, as there is no carrier to mix/add/subtract or change. Equipment used in adjoining rooms / locations will not have any effect on the GTX wireless microphone system, and the GTX wireless microphone system will not have any effect on any equipment used outside its own location or operating "mesh." This type of precision, reliability and control is simply impossible with legacy technology wireless systems.

For added security and peace of mind, once a GTX32 transceiver is mounted, there are a number of unique tools that can be used in order to verify that the transceivers are placed in locations that will provide the best possible performance. The "Tone" function is quickest and easiest method to place the transceivers in a given space. Employing the tone function from the GTX3224 control unit screen, will cause the GTX24 belt-pack to play a continuous 1KHz tone. The tone can be monitored throughout the audio distribution workflow as the transmitter is walked throughout the coverage area. The continuous tone is a far more reliable method, as speech has momentary gaps and pauses allowing a drop to go unnoticed. After walking an area, the screen on the GTX3224 will show connection history which can be reviewed for any possible problem areas.

There is even more performance visibility when utilizing the companion computer control/monitoring software. With the companion software, one can individually turn transceivers on and off to evaluate performance, or even place into a mode in which the transceiver channel light will turn on as it receives signal from a GTX24 belt-pack. The companion software has the ability to display real-time reception and Bit Error Rate (BER) performance of the transceivers. And finally, the companion software will also provide a time-stamped performance log for every device used within the system for up to 31 days.

It only takes a little time to plan and set-up this precision mesh redundant transceiver system, but once set, one can be assured of the quality of service. No new interfering sources or spectrum issues will result in performance surprises or requirements to “tweak” the system set-up. The Alteros GTX system moves wireless performance into the same digital class that has enabled modern mobile communications to flourish, with the added benefit of a multi-receiver diversity that is simply not possible with vintage or legacy systems. Re-thinking set-up is the best way to get control of future wireless performance!