



# Bringing Cellular Dead Zones Back to Life

By Ed Sullivan

**M**aybe you've seen the TV commercials where the customer is entering a motel that is in a cell phone "dead zone." The cell phone user is ominously told by the motel desk clerk that they can't get their cell calls or use their phones to get their precious E-mails and that for all intents and purposes, they don't even exist.

If you work in or happen to visit a building that has poor, or even no cell phone coverage, the situation can be even more distressing. This often occurs in subterranean floors or in metal-clad buildings, where the cell phone signal is either weak or nonexistent. And although the cellular phone service provider may be able to solve the problem with special equipment, that solution is going to cost an "arm and a leg," making it unaffordable for most businesses and institutions.

That cost of the phone company's solution is not only expensive in terms of the system and installation costs, but in most instances will also require a very

pricey monthly service surcharge.

"I have heard of situations where the phone company wanted anywhere from 40 cents to one dollar per sq. ft. to boost coverage in a building," says Ian Timmins, research and development manager with SMP Data Communications. "If you're in a 100,000-square-foot building, it may be impossible to justify that cost. So, you go on living with an untenable situation." Timmins has had personal experience with both the problem and a very practical solution. His office is in a metal-clad building on the SMP manufacturing campus.

## RUNNING FOR THE DOOR

"It was impossible to receive cell phone calls there," Timmins recalls. "When the phone rang, we were running for the door to get outside and maintain the signal. If you could receive a cell call you certainly couldn't maintain a conversation inside the building.

Timmins says that the company's local cellular phone service provider said they could help, but they required

expensive monthly service charges.

"We are a structured cabling company and so we decided to take the matter in hand and solve the situation by enhancing our wireless reception," he explains. "When we were able to do it so easily and inexpensively, we decided that we had a highly marketable product."

SMP realized that the cellular signal reception problem was quite widespread, and could be a result of unavoidable conditions. "Your building may be some distance from the cell transmitter, and so your signal is weak to begin with," says Timmins. "Or, if your building is a metal can, then you have in effect a 'Faraday' cage, an enclosure that is almost impermeable to electromagnetic fields – including the cellular signal. That could be an office or manufacturing facility or a public building like an airport that may have underground public spaces or be shielded from external signals for reasons of preventing interference with their internal communications systems or radar."



**Each Cellular Distribution System includes one outside omni-directional antenna with mounting hardware and external coaxial cable, four antenna faceplates, and one rack mount CDS panel.**

## A SUBTERRANEAN SITUATION

In marketing the new system, one of the first applications came from United Therapeutics Corp., headquartered in Silver Spring, MD. United Therapeutics is a global biotechnology company focused on the development and commercialization of unique products to address the unmet medical needs of patients with chronic and life-threatening cardiovascular and infectious diseases and cancer.

At one of their headquarters buildings, a multi-story structure, almost three years old, there was no cellular phone reception in the subterranean levels, which housed labs, the quality assurance department, and facilities staff.

"This situation was inconvenient for many of the personnel, but it was a real problem for the facilities technicians," says Robert (Bob) J. Siemerling, associate director, facilities. "Being unable to communicate remotely via cell phones restricted our people when performing some services. For example, there are pump rooms and mechanical rooms down in the basement. Sometimes, when a piece of equipment failed, our technicians needed to be able to talk with the manufacturer while they were looking at the equipment. But we didn't have cellular telephone availability because of the lack of a signal."

To overcome such problems, United Therapeutics looked at a variety of systems. They were expensive, but it turned out that the cellular service carrier pre-

sented the biggest problem.

"It appeared they didn't really want us to put in any cellular solution," Siemerling explains. "They nixed the first one we proposed. Later, when we told them about a second system we were considering, they said we could install it if we signed the equipment over to them. So, I told them I wasn't going to spend \$30,000 on equipment and then sign it over to the phone company. Then they talked about a leasing option with a monthly service fee on top, even though we were already paying for their service. Their position made no sense whatsoever."

## THE COMPLETE PACKAGE

Complete DataCom LLC, a data communications systems provider that specializes in telecommunications infrastructures, helped United Therapeutics find a solution that was not only workable but also low in cost, easy-to-install and completely independent of the phone service provider.

An SMP certified contractor, Complete DataCom, decided to recommend the new SMP's new Cellular Distribution System (CDS) to provide cellular phone service to the subterranean levels of the building.

The CDS is designed to improve cellular reception within a building that experiences poor service coverage and the system uses the same coaxial cable as cable television and may be easily implemented over previously installed cabling. Each CDS includes one outside omni-directional antenna with mounting hardware and external coaxial cable, four antenna face-



**The CDS system uses the same coaxial cable as used for cable television and may be easily implemented over previously installed cabling.**

plates, and one rack-mount CDS panel.

The new cellular signal solution is applicable to areas where some cell phone signal outside the building. Users must install at least two antennas, one inside the building that distributes the signal throughout the area, and one external antenna that connects with the cell phone service provider's tower, typically mounted on the roof. The system doesn't boost the signal, but rather connects it inside the building.

"The system is available at a very reasonable price, and it worked perfectly for them," says Ben Wells, Complete DataCom president. "The material used to do the wireless phone system includes an SMP head-in box and rooftop antenna. From the antenna down to the box you install a 50-ohm coaxial cable. From that one box you can install up to four other antennas throughout the building. Those antennas extend the cell coverage from outside to inside. Installation took less than an hour, and it works wonderfully."

Wells adds that the price is about one-fourth of the total cost for the equipment that the phone company and others were proposing. "Plus, you save on the substantial monthly charge and other fees that the phone company wants for other solutions," he says. "So, the solution is a one-time cost, and a cost that is significantly lower." ■

**Ed Sullivan is a Hermosa Beach, CA-based writer. He has written numerous articles covering a wide variety of industries – ranging from technology to real estate for over 25 years. For information about SMP, visit the web site [www.smpdata.com](http://www.smpdata.com)**



**SMP's Cellular Distribution System is designed to improve cellular reception within a building which experiences poor service coverage.**