

Tech Bit 49

I Can Hear You Now!

Cell phones have become an integral part of society... There are over 200 million cell phone users (that's two out of every three people in the United States).

When I sold the family rep agency in 2000, I decided to use my cell phone as my primary business phone number. With as much traveling as I've done since, it was a good choice. My phone works almost everywhere in the world—except inside my house.

Even though there are more than 180,000 cell sites, when I'm in my home office my cell phone barely works. On a good day, I get one or two bars of signal. On a bad day, my phone shows no signal at all. Most of the time I get voice mails, not a ringing phone. T-Mobile, my carrier, is nice enough to show their coverage map, you can see exactly why I have problems.

I used to have the same problem in our offices/warehouse, but that could easily be explained by all the metal in the building's construction.

As we become more dependent on our cell phones for our business, locations without good cell coverage can mean losing a lot of business—especially when those locations are where you spend a lot of your day.

There have been solutions for in-building cell coverage issues, but they have been expensive costing between \$10,000 and \$25,000.

Now there are solutions inexpensive enough to make sense for an office or house.

The first unit I tried was a simple cell phone repeater.

It operates with two antennas (one outside the house/office, one inside) and amplifiers. The outside antenna, which I mounted on the top of our fireplace chimney to give it the best view of existing cell phone towers in my area. The antenna is Omni directional so it can pickup more than one tower. The signal is then fed into the amplifier inside and rebroadcast inside. When I'm making calls the reverse is true, my signal from the phone is picked up by the inside antenna and rebroadcast using the outside antenna. This all happens so fast there is no delay added by the system.

The negative of this approach is that if your neighbors all find out what you have and decide to get their own repeaters pretty soon they are going to be interfering with each other. Similarly you shouldn't use several repeaters in the same office/warehouse building.

The other approach is a new smart repeater from Spotwave. Using the same basic technology as their commercial (all building), the Z-1900 costs a lot less at \$399.

The Spotwave unit uses a square directional antenna outside (the NAU--network access unit, its intelligent amplified antenna) and a very small amplifier antenna combination inside (the CU coverage unit, the miniature indoor cell tower). I did notice the mounting hardware for the outside antenna (which I have mounted on the second story of the house) only allows mounting at 90 degree angles, so my outside antenna is not pointed exactly at the cell tower, I suspect lowering my signal a half a bar or so.

The big difference between the Spotwave unit and a simple repeater is it prevents feedback between the two antennae. You know the squeal of a PA system when sound from a speaker makes its way into the mike to create a loop. The same thing can happen to cell signal boosters that aren't smart enough to counter the problem; for them, feedback effectively blocks any desired communications from happening. Echo Feedback Cancellation happens in the Spotwave cell-band booster through patented interference & oscillation protection technology.

Both of these units were designed to operate in the PCS 1900 MHz range. There are some services using the older 850 MHz range (even new installations where there are spectrum availability issues). Obviously these units won't work with those services, so check with your carrier what band you are actually on before getting one.

I guess now that I have 4 bars of reception anywhere in the house, even the basement, I don't have any reason to miss that call of yours. Maybe this isn't an improvement after all...

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