PRIVATELINE
TELECOMMUNICATIONS EXPERTISE

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About Private Line

Private Line covers what has occurred, is occurring, and will ocurr in telecommunications. Since **communication technology constantly changes**, you can expect new content posted regularly.

Consider this site an **authoritative resource**. Its moderators have successful careers in the telecommunications industry. Utilize the content and send comments. As a site about communicating, **conversation is encouraged**.

Writers

Thomas Farely

Tom has produced privateline.com since 1995. He is now a freelance technology writer who contributes regularly to the site.

His knowledge of telecommunications has served, most notably, the American Heritage Invention and Technology Magazine and The History Channel. His interview on Alexander Graham Bell will air on the History Channel the end of 2006.

Ken Schmidt

Ken is a licensed attorney who has worked in the tower industry for seven years. He has managed the development of broadcast towers nationwide and developed and built cell towers.

He has been quoted in newspapers and magazines on issues regarding cell towers and has spoke at industry and non-industry conferences on cell tower related issues.

He is recognized as an expert on cell tower leases and due diligence processes for tower acquisitions.

JULY 09, 2006
Posted by Tom Farley at 07:33 PM

Digital isn't always better

Digital working in cellular radio lets spectrum be used more efficiently and effectively but it isn't without problems. Digital allows compression and other techniques which increases capacity. We can get at least three calls on a channel where analog provided only one. And digital enables advanced services that a simple analog radio system can't provide. Yet voice quality and coverage are often worse compared to analog. For now, let's look at the coverage problem.

California's Sacramento County is currently switching to an all digital radio system for public health and safety providers. Dropouts and poor coverage are two of many problems with the new service. County Fire Chief Don Mette is so concerned that he has put the County on notice. The Sacramento Bee reports he has written county officials, saying, "I must advise you that if any of my personnel are injured as a result of this inefficient, ineffective, and incompetent radio system, both you, in your individual capacity and the County of Sacramento will be subjected to civil liability." Whoa. What's happening? Mette gave more details in his letter.

"There are many complaints about the radio going out of range or being bonked when the radio will not allow them to transmit." The Bee said he wrote the letter after fire officials battled an apartment fire, their communications temporarily cut off. He said a fire engine had to be moved before their radios would work. "In the heat of battle you don't want to move your vehicle around," Mette said." Indeed. But what has this to do with digital?

One can still understand a caller on an analog signal, even as it falls apart. Despite static, fading, or breaking up, one can usually understand what the other person is trying to say. But digital cellular radio requires a certain signal level be maintained, to keep a never ending train of 0s and 1s running between the field radio and the base station or cell site. Loose too many bits and the whole call is lost. Radio folks call this the bit error rate or BER. A digital comm system drops a signal with too many errors, long before a comparable analog signal becomes unreadable. What to do? Install more base stations or sites to decrease the distance from the mobile, thus keeping signal strength up. But adding more sites is extremely expensive. When North American cellular radio went digital it required twice the cell sites as analog to provide the same coverage. More on the vagaries of digital in the coming days. Tom

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