Broadband Over Power Lines, Interference, the Truth and You

Posted by: **Dennis Little** on Jan 09, 05 | 9:25 pm

My Uncle, an Electronics Test Engineer and all-around brilliant guy who works for **Patton Electronics**, and I have been emailing back and forth recently about a last-mile broadband project I have been working on. In our most recent exchange, he mentioned problems surrounding a recently hyped (but historically problematic) technology commonly known as Broadband Over Power Lines or BPL for short; Power Line Telecommunications (PLT) and Power Line Broadband (PLB) are other names that are commonly associated with BPL. This technology is being tested and implemented on a fair scale by providers such as **PP&L** as a part of the SONET ring infrastructure built here in South-Central Pennsylvania and I have seen the system in action at a client's location... it is pretty neat to see broadband being pushed over an old system inherently terribly unsuited for high-speed data transmissions.

While this technology seems to have serious promise to bring broadband to rural America, it also has very serious problems that are not really being debated as well as they should be. While the FCC recently granted a motion of limited extension for comment on BPL interference (see **here**), the marketing and media folk seem to be doing a better job of reporting about the promise of BPL than investigating its problematic past; the public seem to be blissfully unaware of any glitches with the system. Mainly, the serious problem that is a FACT of BPL is the interference that the technology causes with low frequency radio operation in surrounding areas. Broadband Over Power Lines has been documented to cause interference not only with HAM radios that are vital to our wellness in the event of natural or man-made disaster (HAMs commonly spring into action when traditional telecommunications infrastructure is compromised), but also the technology's interference causes major problems for so-called first response personnel: our firefighters, police and FEMA officers.

Where my uncle lives (Washington County, Maryland), Fire and Rescue personnel utilize radios in the 38 Mhz* range of frequency, smack dab in the midst of the band of interference that BPL has been well documented to emit. What can this mean for Joe Smoe homeowner who has BPL deployed in his area? The interference could mean total disaster in the event of trouble. Let's say that Joe Smoe's house catches fire and he calls 911 emergency for help. By the time Fire and Rescue has arrived, Joe's house has gone to a second alarm fire and personnel on the scene radio back to dispatch asking for more help. The radio message would likely not reach home base if the trucks were within close proximity of power lines (where most houses just happen to located) and the message could go unheard. The costs could be vastly more devastating given an even more serious scenario. Even more egregious is the fact that many local emergency personnel may not be aware of the pending problems they are about to face should BPL take off as a viable product. More troubling is that fact that even IF these first responders know of the problem, the majority of them are fully unprepared to deal with the situation and move to different spectrum of frequency because of highly restrictive operating budgets that simply can't afford new communications infrastructure rollout. In Washington Co., MD. County officials are moving ahead with closed consideration of the technology and not allowing public comment at this time. The local ARRL (**Amateur Radio Relay League**) chapter that my Uncle participates in is preparing a presentation for a later date when public comment will (hopefully) be allowed.

The problems that BPL poses are real. The cover-up by BPL operators is real as well. I challenge you to find an iota of truthful information relating to Broadband Over Power Lines interference with radio transmissions on PP&L's web sites; you won't find it.

The fact that an infrastructure not inherently suited or even designed for radio frequency transmission is being utilized for that very purpose is not necessarily unacceptable, but when faced with the problems that are being experienced, we have to take a closer look at solving those problems before a large scale roll-out is allowed. It seems that a hunger for broadband in the rural parts of the United States is overwhelming the judgment of many who are in a position of power to make sure that our radio emergency infrastructure is safe, secure and in working order. Traditionally, electronics that operate on radio frequencies go through rigorous testing and must adhere to strict rules for operation (see the Part 15 FCC stamp on the bottom of your radio, wireless laptop or cell phone), but in this case, the strict rules seem to be overlooked in an effort to bring the large majority of the population online to high speed.

The problem really seems to lie in the fact that behemoth corporate strongholds like **Verizon** and **Sprint**, et. al. continue to stall DSL deployments in an effort to influence FCC policy forcing them to

share infrastructure with competitors. If I really put myself in the highly regulated and restricted shoes of these corporate players, I can't say that I blame them either; putting millions of dollars into an infrastructure to have some competitor come in and blow your socks off in price wars because they get to use YOUR infrastructure basically free of charge isn't really smart business. While I am angered every time I travel to Western Pennsylvania, where large fiber infrastructure is being deployed to largely under populated and uninterested areas, I can see that the move is plainly one to get the regulatory Government agencies out of the way and influence law makers into giving corporations a break. How can we expect broadband to the American home when we punish those that build the infrastructure by putting them out of business? The fact is that broadband will NOT become an accessible luxury for the heartland until more fair and less restrictive rules are adopted by the FCC and other regulatory agencies that stop the legacy of stifling innovation and scaring the entrepreneural spirit away.

You can find more information about the problems with BPL online at:

- **ARRLWeb**
- **ITworld.com**
- **GoBPL**
- **CQ Communications**
- **Any Many More on google.com...**
- **PDF version of this article: redistribute freely, obtain permission before reprinting**

*Washington County Fire and Rescue use FM (frequency modulation), while HAMs utilize AM (amplitude modulation) or SSB (single sideband) in the same frequency spectrum. This means that HAMs will be affected more than FM users as FM is more resistant to noise.

***Disclaimer: I live in rural America, not 500 yards from a major US highway and can't get broadband. While I would love to think that BPL is the answer for me, I can't say that I want to support an infrastructure that causes such interference until the problems are solved. Where I live neither DSL, nor cable, nor BPL are available and probably won't be for some time because of the heavy burden the government puts on ISPs who run data lines under major roadways.