

Central Division News & Views

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The Greatest Ever Threat To Amateur Radio !

About a week after Issue #4 was published on this web site, I started receiving information about a wired communications mode that, if adopted for wide spread use, will raise the noise floor in the 2 to 80 MHz spectrum to the point where use of this RF spectrum by most its licensed users will be greatly impaired. The FCC apparently wants to relax current Part 15 limitations in order to expand the use of Power Line Communications (PLC) far beyond the low power, low frequency signals used by many of the power companies to control electric power distribution circuits. The Commission is now soliciting comments on issues related to what it now calls Broadband over Power Lines (BPL) systems - a technology very different from the current PLC system.

In its *Notice Of Inquiry* (NOI) released April 28, 2003, the FCC wants information and comments so that it can evaluate whether or not to change Part 15 rules in order to facilitate the deployment of this communications mode. Digital data using the 2 to 80 MHz frequency spectrum would be coupled to the power line network and sent to homes and commercial sites. The idea is to provide a low cost, high-speed, broadband internet connection service that would be available to almost anybody in the country. On the surface it sounds very good... and the current Commissioners are virtually cheer-leading this proposal.

However, there are multiple, serious, limitations and problems with this technology.

1. RF signals on power lines will radiate. The power lines will be turned into horizontal broadcast antennas and these radiated signals will severely interfere with all licensed users of this spectrum. The severity of this interference will vary by frequency, distance from the power line(s) and the power level of the BPL signals.
2. First responders (police officers, firemen, medical personnel, and amateur radio operators) will be greatly hampered by this wide-spread, broad-band interference. Federal and state governments are spending large sums of money to expand and unify emergency RF communications networks as part of *The War On Terror*. Yet the Federal Communications Commission is now promoting a technology that could render these networks virtually useless.
3. Power line RF notch filters have been proposed in some countries as a means of protecting specific frequency bands - including amateur radio. But if these filters are used to protect amateur and public service emergency communications, the bandwidth available for BPL would be greatly reduced. And it's a sure bet that proper maintenance of these filters will be an ongoing problem. Amateur radio operators in many areas are already continuously plagued with power line noise that results from poor line maintenance.

4. There's the real probability that BPL will interfere with itself. If each power line is used as a separate RF circuit, the mutual RF reception will generate unacceptable cross-talk which will reduce the connection speed and bandwidth of the affected circuits. It's possible that BPL will be high-speed and broadband in name only.
5. Higher frequency RF has a limited range on a wire. The higher the frequency, the shorter the usable distance. Increasing the power will extend the range, but it also increases the radiated interference. If only the "last mile" of a power line is used for BPL, the economics of such a system (separate system to inject the RF into the "last mile") means that rural users will not have this service and the cost for urban users will be similar to CATV and DSL systems.
6. And lastly, there could be a very serious public safety issue with BPL. Power line step-down transformers block RF signals. RF bypass devices will have to be installed on these transformers. Lightning strikes and long-term wear and tear often cause these transformers to partially short out which raises the line voltage coming into homes and businesses. What will happen when an RF bypass device shorts out? What will 4800 volts do to premises wiring, appliances, and machines intended for 110 and 220 volt operation? How bad is the fire hazard if this happens?

Broadband over Power Line, or whatever it may be labeled, is not physically or economically viable. The FCC wants to ease some of the Part 15 restrictions in order to overcome some of the economic limitations. But the Commission cannot change the physical properties of RF propagation. Japan has already banned, for the time being, BPL. European countries have not yet decided what to do. But demonstrations there have not been favorable to BPL.

With the RF infrastructure (wired and wireless) already present in the U.S., there is no reason for dumping BPL on top of it. It will not provide the so-called "last mile" for multiple high-speed internet connections. The only groups that will profit from it will be the power companies and the BPL equipment manufacturers and dealers. The losers will be the licensed users of the 2 to 80 MHz spectrum, the public served by these users, and the people who purchase BPL service only to find out it's not as good as a CATV or DSL internet connection.

This Notice Of Inquiry is the first step in what will probably be a long and expensive battle to suppress this proposal. I'm sure there will be more opportunities to comment on various aspects of this proposal when the FCC issues a *Notice of Proposed Rule Making* affecting Part 15 Regulations and/or other sections of the Commission's regulations.

Where Can I find More Information?

What I have said above is very general and is subject to different interpretations, depending on the viewpoint of the interpreter. The ARRL web site has extensive information on PLC and the BPL proposal and many links to other sites where you can obtain even more information. If you read and listen to all the material available here and via the links, it will take you the better part of a day. You can get started at: <http://www.arrrl.org/tis/info/HTML/plc/>

The FCC's BPL NOI is at: <http://www.arrrl.org/tis/info/HTML/plc/files/FCC-03-100A1.pdf> You will need the *Adobe Acrobat* reader available for free download at: <http://www.adobe.com/products/acrobat/readstep2.html>

How Can I File FCC Comments?

If you want to file electronic comments (on-line informal comments, or a formal comment as an attached file), you can start at: <http://www.fcc.gov/cgb/ecfs/> Even before you file comments, I suggest that you visit this site and work through all the procedural information so that when you file, you won't get bogged down in the process.

Hamfest Visits & Meetings

Here is my ARRL travel schedule for the next three months. It is subject to change if required ARRL meeting dates were to be changed.

JUN 19-22	ARRL National Convention	Arlington, TX
JUL 6	Kankakee ARS Hamfest	Peotone, IL
JUL 12	Indianapolis Hamfest	Indianapolis, IN
JUL 17-20	ARRL Board Meeting	Windsor Locks, CT
AUG 10	Hamfesters RC Hamfest	Peotone, IL
AUG 24	Bolingbrook ARS Hamfest	Joliet, IL
SEP 12-14	ARRL Planning Meeting	St. Louis, MO
SEP 19-20	W9DXCC Convention	Rolling Meadows, IL
SEP 27	CFMC Radio Expo	Grays Lake, IL

I hope to see many of you at these hamfests and conventions. In addition to shopping for new and used equipment, they are a great way to renew and develop friendships and to meet some of the voices you have heard on your radios.

73 - George R. (Dick) Isely, W9GIG
Central Division Director