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Comments on
Docket 03-104
FCC Notice of Inquiry
Broadband over Power Line (BPL)

General Comments

- Broadband over Power Line technology, although yet another possibility for distribution of broadband Internet connectivity, has enormous potential for interference to licensed radio services, due to its use of open power lines for transmission. Use of overhead medium voltage wiring in particular poses the most serious threat for widespread radiation and interference with many radio services utilized in residential neighborhoods, most particularly the Amateur Radio Service.

- Amateur Radio is a valuable resource for radio experimentation and for emergency communications, particularly in this time of increased concern about homeland security. Amateur Radio also is particularly valuable to such agencies as the National Weather Service in observing and reporting violent weather to facilitate timely warnings to the public of such events.

- Even under current Part 15 limits, this particular technology poses a severe interference threat to Amateur Radio and other licensed services. Due to its potential pervasiveness in affected areas, its regulation should be as strenuous as that of cable TV systems.

- Many Amateur Radio operators, myself included, engage in low power (known as QRP) operation, which involves weak signal reception. Such operation in residential areas benefits neighbors in that they experience a dramatic decrease of interference to consumer electronic devices compared with regular higher power operation. Such low power operation could become nearly impossible in the presence of BPL interference.

- The Federal Communications Commission is charged with the responsibility of protecting licensees from harmful interference. This includes Amateur Radio and members of the general public in reception of AM, FM, and TV broadcast stations.

Responses to Specific Questions in the Notice of Inquiry

- Are existing Part 15 rules adequate to protect authorized users of the spectrum from new high-speed BPL technology?

The answer to this in a word is NO! Due to the pervasive nature of BPL when installed in an area, its regulation should not be under Part 15, but should more resemble that of Cable TV, in which strict radiation limits are set along with a regulatory framework to ensure compliance with these limits. To further limit radiation, BPL signals should only be allowed through twisted pair type cable such as that used in service drops. Only those service drops for subscribers to the BPL service should be energized with the BPL signal. BPL signals to a neighborhood should be delivered through some non radiating technology such as fiber optic cables, with final entry into the residence through the twisted pair power line service drop. . Due to the immense potential for widespread interference to a great number of radio services, including Amateur, over a wide geographical area, BPL transmission over untwisted power lines should be expressly and strictly prohibited. The BPL signal could be delivered to individual twisted pair service drops, or to underground cable via fiber optic cable.

- Does new high-speed BPL technology pose a higher risk of interference than existing unlicensed technology?

Due to the ubiquity of power lines, it should be obvious that BPL poses a far more widespread and pervasive threat of interference to licensed radio services, including Amateur, than the use of single point Part 15 devices. Particularly troubling is the possibility of transmitting the BPL signal over open power lines, exposing large areas to interference over a wide swath of the radio spectrum.

- What spectrum should BPL use? Is there a need to define specific frequency bands for BPL to avoid interference to licensed services?

Emphasis should be on prohibiting radiation in spectrum that is used in residential neighborhoods for either reception or transmission and in prohibiting radiation in spectrum used by such public safety functions as aeronautical navigation. This includes Amateur, AM, FM, TV, NOAA Weather Radio, and police, fire and medical services. There is a definite need, therefore, to define specific spectrum in which BPL systems may operate. The low band VHF spectrum of 30-50 MHz and unused VHF low band TV channels are possibilities.

- What changes should the FCC make to existing rules to promote this technology, consistent with the Commission's objective of protecting licensed radio services?

A consistent and stable regulatory framework similar to that for Cable TV would be in the best interest of both BPL operators and licensed radio services. Instead of using Part 15, separate regulations should set operating parameters such as frequency spectrum and allowed radiation. Due to the pervasiveness of the electric power grid, the Part 15 regulations are simply inadequate to fulfill this need. The regulatory emphasis should be on eliminating interference, not serving as a cheerleader for a particular technology. While the goal of expanding broadband Internet services to include more choices for consumers is worthy, it need not be accomplished by subjecting licensed radio services such as the Amateur Radio Service to debilitating interference. The FCC must meet its responsibilities to licensed radio services to limit interference before promoting particular technologies, particularly a technology like BPL which has such a great potential to cause massive and disabling interference to licensed radio services.

Conclusion

Broadband over Power Line technology poses a huge threat of debilitating interference to licensed radio services, the Amateur Radio Service in particular, in the absence of a strong and enforced regulatory framework. Due to the geographical pervasiveness of the electric power grid, the provisions of Part 15 are simply inadequate to deal with this. The regulation of BPL should therefore be more similar to that for Cable TV particularly in enforcement of strict limitations of leaking radiation. Regulation should also concern itself with what spectrum is used by BPL in that portions of the spectrum that are in use in residential neighborhoods, for either reception or transmission, including Amateur Radio bands, should be disallowed for BPL use. Further regulation of BPL delivery systems should prohibit use of open or untwisted lines for BPL signal transmission and delivery of the BPL signal. Such transmission over open power lines is a recipe for interference to licensed services over a wide geographic area. BPL service should be delivered to the twisted pair service drop line from a fiber optic cable or similar non radiating technology. Furthermore, to further limit interference, only service drops for BPL subscribers should be energized with the signal. That is, unless you are a BPL subscriber, there should be no BPL signal on your power line.

Finding and implementing new options for broadband Internet access is a good public policy. It is even possible that one way to do this would be through BPL technology. However, my perception is that the Commission, in its zeal to find such new technologies, has blinded itself to the real danger of widespread and damaging interference to existing services and licensees.