

12 August 2003

Federal Communications Commission
Washington, DC 20554

Regarding: Notice of Inquiry on Broadband Power Line Communications
(Proceeding 03-104)

To Whom It May Concern:

I would like to express my apprehension regarding the operation of broadband over power line (BPL) in the short-wave spectrum. On the surface BPL may seem to be an exciting technology for data transmission, especially to rural areas. However, one must consider the potential for disruption to radio services that rely on the unique characteristics of the short-wave spectrum to function.

Those unfamiliar with the distinctiveness of the short-wave spectrum are perhaps likely to view it as just another tiny parcel of "RF Real Estate". After all, this region spanning less than 30 MHz is smaller than the mobile station/base station transmit/receive frequency spread used by cellular phones and two-way public safety radio systems operating in the 800 MHz band. Unlike any other slice of frequencies, the short-wave spectrum (3 to 30 MHz) is the only range of capable of being used to communicate around the world without the need for a complex network infrastructure. In lieu of network hardware, which by the way is likely to be the single point of failure during a disaster, point-to-point communication is possible as signals will refract off of the ionosphere.

I have communicated many times with European amateur radio stations while using nothing more than a backpack style HF transceiver transmitting 2 Watts into a short and electrically inefficient telescoping antenna. The laws of physics that allow this to work cause the greatest concern regarding the ability to mitigate the demonstrated interference BPL causes to licensed users of this spectrum.

By now I'm sure the FCC is aware of the numerous measurements the American Radio Relay League's Ed Hare has made from ongoing BPL field trials. Interference from BPL is real, and far greater than much of the co-channel interference amateur radio operators encounter from other licensed users. If licensed users of the spectrum wouldn't tolerate a similar level of interference from other licensed users, then how could such interference from an "unintentional radiator" be deemed acceptable?

Quoting the NOI:

"How should the Part 15 rules be tailored both to ensure protection against harmful interference to radio services and to avoid adversely impacting the development and deployment of this nascent technology?"

The FCC should consider that BPL presents a different paradigm with respect to the “unintentional radiator” and Part 15, which currently states that a device must meet limits for radiated field strength and that the device must not cause harmful interference to licensed users. The best case of Part 15 spectrum sharing would create interference only on a single frequency. An example would be emissions from the local oscillator of a super-heterodyne radio receiver. In some instances this signal leakage is exploited, a case in point is the “radar-detector detector” used by police agencies to locate and confiscate radar-warning receivers in motor vehicles.

When interference occurs at the most on a few discreet frequencies, licensed users may be able to tune around and avoid the interference resulting in a peaceful coexistence. BPL proposes to consume essentially the entire useful short-wave spectrum. Tuning away from discreet interfering signals will not be an option.

BPL technology is a late arrival to the telecom industry. Being behind in the game shouldn't be reason for the FCC to facilitate the abandonment of science and sound engineering principles in order for the technology to catch up to the existing marketplace. The first priority needs to be that incumbent licensed users of the radio spectrum are protected from harmful interference. Continued trials to ascertain the viability of BPL need to be framed around cooperative science, not the politics of business.

Robert W. Peebles, W8LX
RF Engineer
PO Box 1334
Dublin, Ohio 43017