

BPL promises an easy way to provide yet another way of bringing high-bandwidth data to every American household.

However, I question the need for yet another "last mile" method given that cable, DSL and satellite all provide high-bandwidth services. Every household in the United States has access to at least one of these services, and more than 80% of American households have access to two or more. Prices for these services have either been stable, or have fallen, indicating that healthy free market competition does exist.

Furthermore, only about 60% of households are actually utilizing some form of broadband access, and the average cost for these services is approximately \$40/month. It is obvious that the limiting factor is not cost or availability, but the perception by the American public as to whether it is a necessity.

As appealing as the technology is, there are serious questions, and known drawbacks about its viability.

FCC Part 15 rules require that the operator of an unlicensed emitter not cause harmful interference to authorized radio services, including, for example, amateur radio operators. The absolute emission limits and the non-interference rule work together to allow most unlicensed devices to operate without causing widespread interference.

However, unlike point-source emitters such as baby monitors, BPL systems will not be local in nature. They will occupy entire communities. BPL systems will not create "birdies" on specific frequencies, but radiated emissions on entire swaths of the radio frequency spectrum.

With access BPL, if an amateur radio operator doesn't have the broadband system installed in his or her own house but experiences interference from signals radiated via the overhead electrical wiring, the only real solution could be to turn off the BPL system in entire neighborhoods. That is highly unlikely to occur.

Amateur radio operators are not the only ones who will be so affected. The FCC recently granted the amateur radio service five channels at 5332, 5348, 5368, 5373 and 5405 kHz. The original request for a band allocation was denied because of national security needs for frequencies in this region for certain government agencies. These agencies, like the amateur radio service, would also be adversely affected by BPL systems.

On the flip side of the coin, it is my understanding that none of the field trials of BPL have yet studied the issue of immunity.

The American Radio Relay League (ARRL) recently petitioned the FCC for an amateur allocation in the vicinity of 136 kHz. This was denied based on the electric utility industry's claim that its PLC devices (which operate under Part 15 on frequencies below 490 kHz) would suffer harmful interference from 1 W effective isotropically radiated power (EIRP) amateur stations.

However, the utility industry is now making the claim that on the HF and low-VHF frequencies (where power lines make better antennas than they do on LF) the BPL signals can coexist with amateur stations that may be running more than 10,000 W EIRP.

In Europe, where BPL (called PLC—Power Line Communications—there) has been tested for more than five years, there are already incidents involving HF and low-VHF spectrum users causing serious interference with BPL with as little as 25 watts into a 0dB isotropic radiator.

Furthermore, one study of the European experience with BPL notes that there are, "unsolved technical problems with the present generation of PLC technology. Peaceful coexistence with established technologies is currently unlikely." <http://ce-mag.com/archive/03/ARG/hansen1.html>

Before BPL is approved for widespread use here in the United States, there are multiple issues that need to be addressed:

- 1) Is it really necessary? With the continued expansion of existing cable and DSL lines, as well as the ubiquitous presence of satellite, the cost of broadband access has been stable and/or falling for years now. There is obviously no monopoly here, so is there really a need for yet another "last mile" provider?
- 2) Will existing services be adequately protected from interference created by BPL? Will governmental services lose their communications capability because the noise floor has been raised by BPL emissions? If BPL does cause interference to existing licensed users of the spectrum, will it be required to take all necessary steps to remediate the issue, including the cessation of service?
- 3) Will existing services be granted immunity from causing interference to BPL? Should an existing service—such as the amateur radio service—cause interference to BPL, will the responsibility for correcting the issue lie with the utility companies since the amateur service is licensed to use that part of the radio frequency spectrum?

Until these and other questions are adequately answered, there should be no expansion of BPL in the United States.