

Pretending to Sleep

“There is an Indian saying: ‘You can wake a person who is sleeping, but not a person who is pretending to sleep.’”

That sums up our dealings with the FCC on interference from Broadband over Power Line (BPL) systems. If the Commission were asleep — that is, if they were simply unaware of the intractable radio interference caused by some BPL technologies — the facts would wake them up. But they are only pretending to sleep. Factual arguments, no matter what the volume, will not arouse the FCC from its feigned slumber.

The most recent evidence is the FCC’s Memorandum Opinion & Order (MO&O) adopted August 3. The MO&O disposes of the 15 petitions for reconsideration (one from the ARRL) that were filed after the FCC adopted new rules for Access BPL systems in October 2004. Most — including ours — argued that the new rules did not go far enough to protect radiocommunication systems from interference caused by the inevitable radiation of RF energy from unshielded, BPL-bearing power lines. We were not alone in our concerns; Aeronautical Radio, Inc (ARINC), the American Petroleum Institute, the Association for Maximum Services Television, Inc, and the National Telecommunications and Information Administration (NTIA), among others, sought additional protection.

The question that comes to mind after reading the MO&O is, “What has the FCC been *doing* for all this time?” The MO&O contains scant evidence that the FCC is any more knowledgeable about BPL interference now than it was when it adopted the Report & Order (R&O) in October 2004.

A good example is its treatment of the extrapolation factor for measurements performed at other than the distance from the power lines that is specified in the rules. This is important because the radiated emission limit for frequencies below 30 MHz is specified at 30 meters from the source, while the actual measurements are to be made closer to the source.

In 2004 the FCC chose to apply to BPL systems a 40 dB per decade extrapolation factor. While that factor has existed in Part 15 for some time and may be appropriate within the near-field region of a point source, it does not apply, theoretically or practically, to radiation from a line. In the R&O the FCC offered a ray of hope by saying that it would revisit the issue if new information became available. Unfortunately, in the MO&O it dismissed whatever new information did not support its original, flawed conclusion.

In its petition for reconsideration, ARINC demonstrated beyond any doubt that the Commission’s rationale for 40 dB per decade was based on a misinterpretation of an NTIA report. ARINC pointed out specific examples of NTIA measurements that showed decay values much less than 40 dB/decade and more like 15 to 20 dB/decade. In fact, NTIA’s measurements bear a striking resemblance to measurements performed a year later by the United Kingdom’s Office of Communications (Ofcom). Ofcom’s report of its measurements at a BPL (called PLT in the UK) installation in Crieff, Scotland noted, “Below 30 MHz...the electric field regression... varied between approximately 16 and 21 dB/decade.”

The ARRL’s petition for reconsideration used proven software analysis tools to analyze a number of power line configurations that had been provided to the FCC by various parties to the rulemaking proceeding and showed that “The 40 dB/decade extrapolation consistently underestimated the actual field strength in any models that represented real-world BPL installations.”

The FCC’s conclusion after (presumably) reviewing all of this? “No new information has been submitted that would provide a convincing argument for modifying this requirement at this time.” In other words, the FCC continues to believe that a point is the same thing as a line. One can only hope that the Commissioners don’t help their children with their geometry homework.

Even more egregious than the FCC’s failure to correct this obvious error is its introduction of a new rule aimed directly against mobile stations. The new rule, §15.611(c)(1)(iii), absolves BPL operators of responsibility for taking any action to correct interference to mobile operations other than to reduce emissions to 20 dB below the Part 15 limit below 30 MHz, or to 10 dB below the limit above 30 MHz. Coupled with the inappropriate extrapolation factor, this is far short of what is actually required to eliminate harmful interference.

Simply stated, **this new rule is intolerable and we do not accept it.** It is contrary to the FCC’s obligations, under the international Radio Regulations as well as the Communications Act, to protect radiocommunication services from harmful interference. This was discussed in some detail on this page in August 2004; there is neither space nor necessity to repeat it. Apparently, however, it is necessary to state what should be obvious: **The Commission has no authority to define away these obligations.** Harmful interference is harmful interference. The operation of an unintentional radiator is conditioned on not causing harmful interference to a licensed radiocommunication service — fixed or mobile, amateur or otherwise.

BPL system operators who cause harmful interference in the amateur HF bands have demonstrated little ability either to measure the emissions from their systems or to adjust them to stay within the Part 15 limit, let alone 20 dB below the limit. Some of them can’t tell the difference between the system noise floor of their insensitive test equipment and the ambient noise in the external environment.

Unlike the FCC, we have learned a lot about BPL interference since October 2004. Among other things, we have learned that some BPL systems can be operated without causing harmful interference to amateurs — and we have acknowledged that fact. The FCC had the opportunity to do the same, and to revise its rules so as to encourage radio-friendly BPL systems while discouraging those that pollute the radio spectrum unnecessarily. Doing so would have steered the BPL industry away from spectrum-polluting technologies that will cost those who choose to deploy them a lot of money to solve interference problems that could have been avoided altogether.

We had reason to hope that recent personnel changes at the Commission would lead to a more enlightened result on reconsideration. Therefore, the Commission’s failure to take new information into account in the MO&O is a disappointment. But **this is not the end of the battle — as anyone who chooses to deploy a BPL system that causes harmful interference to amateurs will quickly discover.**



David Sumner, K1ZZ
ARRL Chief Executive Officer