

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Inquiry Regarding Carrier Current Systems) ET Docket No. 03-104
Including Broadband over Power Line)
Systems)
)

REPLY TO COMMENTS MADE BY THE UNITED POWER LINE COUNCIL

Paul Kasley
W9TS
5152 Madison St.
Hillside, Illinois 60162

August 16, 2003

I write in response to the United Powerline Council's (UPLC) comments regarding FCC Docket 03-104. I have been a licensed radio amateur (W9TS) since 1967. I hold a Bachelor of Science in Electrical Engineering and have been a practicing engineer since 1975. My professional experience includes a number of years with a major manufacturer of radio equipment headquartered in the Chicago area, as well as my current position with a Department of Energy National Laboratory.

The UPLC has stated their preference that Class A standards apply to Access BPL equipment on medium voltage lines. I claim that the existing Part 15 standards are inadequate for all forms of BPL in all applications. Part 15 was written for essentially point sources of radiation and neither anticipated nor provided for a very large number of identical broadband radiators spread over a large geographical area. With BPL signals on power lines and house wiring, the typical urban and suburban residential areas will be bathed in a constant high level glow of unintentional RF from distributed Access and In-Home BPL sources. The effect will be analogous to that of street lighting on star-gazing – one will have to travel miles away from populated areas to find places where the ambient RF pollution is low enough to be able to receive any but the most intense HF signals. I urge the Commission members to visit the ARRL website at http://216.167.96.120/BPL_Trial-web.mpg to see a demonstration of the nature of the interference that amateur radio and other users of HF will experience.

The Class B standard was promulgated to protect consumer receivers from incidental radiation in residential areas and not, as the UPLC would have one believe, as some artificial distinction between professionally installed equipment and equipment installed by unsophisticated consumers. The medium voltage lines the UPLC proposes to

use for BPL traverse residential areas to get to their potential users. In fact, I have a medium voltage line located above ground 75 feet away from my amateur antenna in my rear yard and another line feeding the string of lamps on the street side less than 50 feet away. I estimate that levels that comply with Class A will easily put signals in excess of 10uV into my receiver bandwidth, high enough to render it deaf. It is ludicrous to relax the radiation requirements on these so-called industrial lines that pass by my home. If anything, the amount of spray allowed from these lines should be even tighter than Part 15 Class B allows.

The UPLC cheerily states, “The UPLC is pleased to respond that there has been no interference reported in any of the field trials by its members”. Because no complaints have been filed does not mean that interference does not exist. I have found Commonwealth Edison in Chicago to be generally unresponsive to my complaints of interference from their equipment. Only when I am able to pinpoint the exact location of their hash generators and I directly and continually telephone the responsible department do I get action. In other words, I do not even bother to contact ComEd until I can virtually tell them what is wrong and how to fix it because any lesser standard of evidence results in inaction.

Resolving interference becomes even more difficult when the noises emanate from within a residence rather than from the local electric utility. I have been plagued for several years by an intermittent source that spews arcing-type noise over the entire spectrum from the AM broadcast band up through the 144Mhz amateur band. At its worst, the noise levels can exceed 100 uV at my HF receiver – high enough to render my equipment useless while the noise continues. I know from the nature of the noise that it is

not ComEd's problem but I cannot pinpoint it because the crud is being conducted over their lines and creating an RF "fog"- the pole mounted step-down transformers are less than the perfect isolators that the UPLC considers them to be. When I do finally nail down the source, I will have to find some way to get the homeowner to work with me to resolve the problem. I cannot imagine the magnitude of problems that I will have trying to do this with a multitude of my non-technical neighbors who will wonder what planet I dropped from as I attempt to explain how their Internet connection is destroying my ability to communicate. To quote a Dilbert strip, their response will be: "Watch me not care."

Let me also mention that power lines and house wiring may be satisfactory conductors of 60 Hz power, but corroded and poor connections within these wiring systems, old aluminum house wiring, and other defects will offer the potential for rectification and other non-linear effects. Mixing products will translate BPL interference out of the 1-80Mhz baseband and into higher frequencies such as the VHF public safety bands and the 120Mhz aeronautical band. With the low priority that utilities place on line maintenance, I suspect that they will be kept very busy when the FAA starts complaining.

I also note that the UPLC did not discuss RF ingress to Access and In-Home BPL. Any point of RF egress is a potential point of RF ingress. I can guarantee the Commission that my neighbors, the village board, and the village zoning board will not understand that problems they experience with their Internet connections are due to their choice of BPL Internet connectivity and the inherent susceptibility of their equipment to signals from licensed RF transmitters. Instead, I will be cast as the villain radio ham that disrupts the neighborhood peace and welfare by recklessly beaming RF into their

expensive but poorly conceived and designed toys. I dread the prospect of having to defend my use of HF against a scientifically and technically ignorant populace. I doubt that the Commission or the UPLC will be next to me at the village board meetings or will assist me in responding to civil actions.

In summary, I believe that BPL as presently conceived will mean the death of amateur radio and will be an ever-present curse to all users of the HF spectrum. Part 15 in its present form is inadequate to protect HF users from the harmful haze of RF pollution that BPL will create. Finally, the susceptibility of BPL modems to RF ingress will cause extreme hardships as licensed HF users are forced to defend themselves against unreasonable claims of harm.

Respectfully submitted,

Paul A. Kasley