

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Carrier Current Systems, including)	ET Docket No. 03-104
Broadband Over Power Line Systems)
)
Amendment of Part 15 Regarding)	ET Docket No. 04-37
New Requirements and Measurement)
Guidelines for Access Broadband)	
Over Power Line Systems)

REPLY OF CORTLAND E. RICHMOND, JR.
TO
COMMENTS OF Duke Energy Corporation

These Reply Comments are filed in response to comments in the referenced matter by Duke Energy Corporation, hereafter referred to as "Duke." The writer has been employed in the field of Radio Frequency Interference and Electromagnetic Compatibility in diverse technologies since 1983, has held an Amateur Radio license over 40 years, and spent more than 21 years in the Army working with and on communications systems and electronic equipment.

Duke writes :

At II. THE PROPOSED DEFINITION SHOULD BE REFINED AND NARROWED," Duke asks the Commission refine the definition of Access BPL to specifically exclude low-frequency Supervisory Control and Data Acquisition (SCADA) carrier current systems from regulation as BPL. Excerpt: *"utilities must depend on continuous availability of PLC circuits for transmission system protection and could not precipitously terminate transmitters or shift frequencies without jeopardizing the safe and reliable operation of the electric grid."*

Reply:

This writer believes Duke makes a case for doing so. However, in making that case, Duke destroys the arguments that BPL will not cause harmful interference, when it acknowledges that utilities must indeed terminate operation or shift frequencies for BPL.

This may be interpreted in two ways. One is that even when harmful interference is created, Duke will NOT *"terminate transmitters or shift frequencies ,"* a policy clearly at odds with Part 15. The other is that Duke will not use and cannot recommend (for the reasons it states above, incurred by Part 15 compliance) BPL for transmission system protection. The writer believes this may be one of the very few instances where a party hitherto supporting deployment of BPL has forthrightly admitted that a major marketing thrust, security and control services, is invalid.

Duke writes:

“...the definition of Access BPL should recognize that “... *any communications equipment that is to be installed on the medium or low voltage lines on the utility's side of the point of interconnection with the customer's premise must be owned, installed, and maintained by the utility.*”

Reply:

This writer believes that matter falls outside the scope of the extant Proceeding. It may well be addressed under treatment of strand, vault and pole-attached non-CPE broadband Intent equipment already in widespread use.

Duke writes at

A. Potential Harmful Interference to Licensed Services Can Be Mitigated and Resolved:

Duke has followed a number of Access BPL trials with great interest, and is persuaded that Access BPL can be implemented with limited adverse effect on licensed radio services. In particular, by incorporating certain safeguards into Access BPL equipment and facilitating communications between licensed users and Access BPL providers, Duke believes that the concerns over potential harmful interference can be mitigated or fully resolved. As a public service entity that has worked in tandem with public safety agencies to address many emergencies, including hurricanes, snowstorms, and man-made catastrophes, Duke is also highly cognizant of the need to ensure public safety communications are free from harmful interference. Duke is confident that the measures proposed here, in conjunction with the Part 15 obligation to remedy harmful interference, will protect these critical systems

Reply:

Duke appears to be planning how to reduce interference issues inherent to the technology it is being offered (and did not create). As operator, however, Duke will be uniquely responsible, and vulnerable when it causes harmful interference to radio communications. Unfortunately, Duke has not always been helpful where radio interference from power lines was reported, and a reasonable projection of similar behavior when RF energy is deliberately injected on power lines raises no hopeful prospects. See <http://www.arrl.org/arrlletter/01/0831/>

(excerpt):

In North Carolina, Jim Scholten, AD1V, had been frustrated by noise from Duke Power Company lines for several years. After a letter went out from ARRL to Duke Power--with a copy to the FCC--Scholten reported that linemen suddenly appeared at the suspect poles, and his noise problems abated. "It was impossible to make the power company do their job without you!" he wrote Phillips.

Duke is of course not alone; a search of FCC enforcement letters reported on the ARRL database for about the past year shows unresolved (when the letters were written) problems with power utilities in Lakeland, FL; Philadelphia, Pennsylvania; Minneapolis, MN; Reading, PA*; Pueblo, CO (utility headquarters in Kansas City, MO, however); Lubbock, TX; Sheboygan, WI; Fenton, MI; Gouverneur, NY; Allison Park, PA; Columbus, OH*; Brick, NJ and Memphis, TN. It appears that by the time a complaint rises to this level the interference has lasted for months, and the utility responsible for resolving it has delayed investigating, denied responsibility, and generally remained uncooperative with the requirements of Part 15. The asterisks above denote two cases for which the texts of FCC Letters to utilities are available; that text appears as an enclosure to this Reply Comment.

Duke writes (excerpt):

C. The FCC Should Not Dictate A Range of Frequencies or Require Frequency Exclusion Capability

... given the inherent shielding of underground distribution systems, it may only prove necessary to have minimal mitigation capabilities in Access BPL devices for underground deployment. Duke recommends that the FCC refrain in requiring such prescriptive specifications for Access BPL device capabilities and rely instead upon its required outcomes for active mitigation of harmful interference.

Reply:

Duke's recommendation is perfectly understandable given its proposed position selling and providing BPL. Duke wishes to make the most use of what it has, with as few hindrances as it can obtain to doing so. This writer takes a different position. Duke is investing not in a dead horse, exactly, but one whose coat is oiled, shiny, and glued on, and whose tail is woven from the hairs of other, healthier beasts. Trials have so far shown this horse can carry a jockey around the paddock. This, at a time other horses are setting records.

The BPL breeder wants its gift horse to be ridden without weights, start without the inconvenience of a gate, cut across the infield, and foul others with impunity. Duke wants to not lose its shirt. This writer recommends that not only should band exclusions be considered, but that if they are not, or, in bands not hitherto excluded, for each complaint of harmful interference, the frequency band for which a complaint was received should be disqualified for use in the system that generated interference.

Duke writes at *D. A Limited Central Database Should Be Established to Screen Harmful Interference Complaints and Facilitate Communication with Access BPL Providers*:

(excerpt)

...the amount of data that the FCC proposes to collect from utilities and make available to the public far exceeds what is reasonably necessary to achieve the FCC's purpose. By comparison, the PLC database contains relatively general information on PLC system operations and is not made routinely available to the public. Granting public access to a national database of Access BPL devices containing the level of detail suggested in the NPRM would be: (1) inefficient, duplicative, and unwieldy, (2) cost-prohibitive, (3) unnecessary to manage legitimate harmful interference concerns; (4) inconsistent with Homeland Security and the need to protect Critical Energy Infrastructure Information (CEII);¹⁰ (5) of potential commercial value to the competitors of Access BPL; and (6) inconsistent with the treatment of other Part 15 devices, however widely deployed, that are not required to be posted to an infrastructure database.

Reply:

Proponents of BPL have been insisting their equipment is “point source,” with limited radiated coverage. If this were so, it would be all the more necessary to know exactly where each one was, and on what frequencies it operated. If, however, BPL is not an unrelated assemblage of point sources, but couples sufficient energy to lines to cause interference over a poorly defined but relatively continuous dimension – as persuasive evidence indicates is so – then it could be acceptable to merely tell in general terms where emitters are, and in what frequency ranges interference may be expected. Since many of those who will experience interference are not technically competent, they must be provided with enough information to know to whom to turn for recourse. Thus, a fairly large amount of information must be provided.

Duke asserts that the NPRM's proposed database is cost prohibitive. However, the information needed to construct the database already exists internally. Duke says it is unnecessary – but less has a good chance of being not enough. And Duke says it is inconsistent with Homeland Security.

This deserves a comment of its own. “Be careful what you ask for,” is the saying. “You may get it.” During a time of war, possessing maps and books representing strategic points such as power plants, bridges, crucial intersections, military bases and police stations may be criminalized. Maps and books show the terrorist exactly where to go, and in some cases, what to do, and how to do it. Certainly the Internet has a wealth of such dangerous information on it, uncontrolled. If Homeland Security is so easily harmed, why, Broadband and BPL would be co-conspirators.

Homeland security is not harmed by knowing where BPL injectors are. Homeland security is, however, harmed by asking, figuratively though it may be here, that we all turn in our maps and books with pictures of strategic sites, and cripple and censor the Internet's access to information, an access that is the reason why this Proceeding exists.

Duke writes (in the same place):

The primary value in maintaining such a national database would be to help the licensed user determine whether Access BPL devices might be deployed in the general area of the harmful interference and if so, to identify the system operator and a point of contact to investigate the situation. Each BPL provider will undoubtedly maintain its own database of BPL device locations and operating parameters, but licensed users will need some means of quickly identifying who to contact that will have access to this information.

Reply:

Duke here, as the Commission seems to in the NPRM, ignores the fact that there are many millions of people who listen to radios. The writer will not pretend that all these millions listen to short wave radios. However, treaties, the law and the Commission have up to now all agreed that these listeners, that is, the American public, must be afforded the ability to do so. Since most are technically unlearned, a national database will actually find its primary value informing these people when that ability is repeatedly disrupted by BPL equipment. Duke is of course a technically literate organization and such often discount those outside the walls.

Finally, to insure complainants are not brushed off with excuses, the writer recommends the Commission include require utility funded, but independent, outside evaluation of BPL interference complaints. This would serve to reduce the number of interference complaints utilities would receive unrelated to BPL or power lines, and the information gathered would be of great value to the Commission.

Respectfully submitted,

21 June 2004

Cortland E. Richmond, Jr.