

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems)	ET Docket No. 04-37
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To: The Commission

The following are my reply comments to the above noted proceeding. The author has a BS degree in electrical engineering, is a former registered professional engineer in the state of Texas (retired), and a member of the American Radio Relay League (ARRL) and the Institute of Electrical and Electronics Engineers (IEEE). In addition, the commenter has held an amateur radio Extra Class license for over 30 years, currently as WØZW.

1. In reviewing comments to this NPRM, I am struck by the tone exhibited by BPL proponents that BPL needs special fostering and nurturing by the Commission in order to become competitive with other broadband technologies. For example, Ambient Corporation commented, *“Ambient requests that the Commission adopt rules supporting the deployment and operation of broadband power line (“BPL”) systems ... to avoid onerous crippling regulation while this fledgling industry is still in the earliest stages of its development.”* One presumes that the “onerous crippling regulations” referred to by Ambient are the very ones intended to protect licensed services from harmful interference. Surely no one is being coerced or mandated to use BPL. BPL equipment manufacturers made a conscience design decision to use unlicensed radio frequency emitters as the basis for their products. Similarly, the BPL service providers, including municipalities, private enterprises, and utility companies choose to implement and operate systems based on BPL technology freely and of their own volition, with the knowledge that they

are legally bound to comply with applicable Part 15 rules. As such, these entities should have no expectations of regulatory protections or equivalent operational privileges as those afforded to licensed services. I see no obligation on the part of the Commission to promulgate special rules which support or foster a fledgling industry, especially one which has the real potential to cause widespread interference to licensed users. There is, however, a clear legal obligation of the FCC to protect licensed users from interference. The Communications Act of 1934, Sec 333 [47 USC 333] states, “*No person shall willfully or maliciously interfere with or cause interference to any radio communications of any station licensed or authorized by or under this Act or operated by the United States Government.*” Contrary to what Ambient Corp. and others might request, the Commission has no statutory jurisdiction to apply special rulemaking arbitrarily favoring BPL deployment, whatever its benefits, to the detriment and compromise of licensed services. Any considerations of business incubation or the facilitating of private capital investment have no bearing on this proceeding and should not, even remotely, be factors in the Commission’s rulemaking.

2. Several comments question why the FCC is rushing to judgment concerning proposed rulemaking for BPL. For example, the IEEE-USA said, “*We therefore, strongly urge the Commission to approach this matter with a more cautious and measured approach.*” A similar sentiment was expressed by the ARRL, “*At the outset, ARRL is constrained to suggest that this proceeding is ill-timed and constitutes a blind rush to judgment, for no apparent reason other than a consuming effort to facilitate additional competition in broadband delivery mechanisms.*” I completely agree with these comments. Furthermore, my strong belief is that electromagnetic compatibility issues with existing wireless services resulting from the mass deployment of BPL requires significantly more technical study than was done prior to releasing this NPRM. In fact, test data supporting the proposed BPL emissions limits are completely lacking in the NPRM. The rationale by which the FCC believes BPL devices can

operate under the non-interference requirements of Part 15 is unsubstantiated. The FCC is putting the cart before the horse by proceeding with this NPRM before all the technical facts are known. By issuing rules without a solid technical basis, the Commission risks serious interference to licensed services in the name of regulatory expediency. Such an approach is unacceptable. While I acknowledge that the Commission extended the deadline for filing reply comments by three weeks to permit review of the Phase 1 NTIA study on potential BPL interference, this is hardly sufficient time to fully digest such material.

3. Some comments to the NPRM downplayed or outright dismissed the possibility that BPL operation will interfere with licensed services. Cinergy Corp. refers to, “... *unsubstantiated fears of potential interference with other spectrum users.*” The United Power Line Council (UPLC) comments, “*Despite apocalyptic predictions that “BPL is a Pandora’s box of unprecedented proportions”, the UPLC agrees with the FCC that Access BPL devices will not cause the power lines to “act as countless miles of transmission lines all radiating RF energy along their full length.” UPLC goes on to say, “These opponents have produced no scientific evidence to show otherwise, and all the measurements in the field contradict their abstract calculations”.* Contrary to these statements, the National Telecommunications and Information Administration (NTIA) report 04-413 entitled “Potential Interference From Broadband Over Power Line (BPL) Systems To Federal Government Radiocommunications At 1.7 - 80 MHz Volume I” dated April 2004 does indeed provide scientific evidence of significant interference potential from BPL systems. The NTIA modeled four representative federal radio stations; land mobile, shipborne, fixed land based, and airborne, each in BPL environments where emission levels complied with Part 15 limits for unintentional radiators. Geographic areas were then determined for each radio installation type within which station operation was degraded by amounts

associated with moderate and high probabilities of interference. To summarize the study results, for the vehicular mobile station the interference radii ranged from 25 meters to 75 meters (82 ft. to 246 ft.). For land fixed stations the interference radii ranged from 175 meters to 400 meters (574 ft. to 1,312 ft.). For shipborne stations the interference radii ranged from 55 meters to 100 meters (180 ft. to 328 ft.). For the airborne station scenario, BPL interference exceeded average ambient RF noise at a distance beyond 50 km (31 miles) from the center of the BPL deployment area. Although the NTIA report was introduced late in this NPRM proceeding, there can be no doubt from its findings that interference from BPL systems will be a real and significant threat. One need only consider how many fixed land HF stations are within a quarter mile of a power line to visualize the magnitude of the interference potential of BPL.

4. Filed comments have acknowledged that in cases where BPL interference cannot be managed by mitigation techniques, Part 15 requires that the offending device(s) cease operation. For example the United Power Line Council (UPLC) comments, *“As the FCC notes, all unlicensed devices are subject to the condition that they not cause harmful interference, so even if interference did occur, the Part 15 rules would require BPL to cease operations, or otherwise mitigate the interference, as the FCC has proposed. Utilities and technology companies seeking to deploy Access BPL have no incentive to cause interference, thus risking stranding significant investment.”* In practice I fear that convincing a BPL operator to cease operation of an interfering device will present a legitimate complainant with a black hole of administrative hurdles and time delays. Such stonewalling will have the effect of rendering the protections afforded by Part 15 meaningless. Unfortunately, the scenario described above has already come to pass. As reported in the *ARRL Letter* of June 18, 2004, Jim Spencer, amateur radio licensee WØSR of Cedar Rapids, Iowa has suffered severe broadband over power line interference for more than

two months. Despite Spencer's full and patient cooperation with Alliant Energy's and manufacturer Amperion's efforts to eliminate the interference, the BPL system continues to operate. A formal complaint was filed by the ARRL on behalf of Spencer with FCC Enforcement Bureau Chief David H. Solomon and calls on the Commission not only to order Alliant Energy's BPL field trial system to shut down but to fine the utility \$10,000 for violating the Communications Act of 1934 and FCC Part 15 rules. If this is an example of the cooperation and respect for the law that we can expect from BPL operators in cases of documented BPL interference, then indeed the FCC will have opened Pandora's box in authorizing BPL operations as currently envisioned. At a minimum, the final ruling of the NPRM must include a firm time limit within which BPL operators must act when presented with clear evidence of BPL interference, and specific penalties and forfeitures for instances of failure to act.

5. In conclusion, I urge the FCC to proceed with the utmost caution and conservatism when specifying emissions limits, measurement methods, and interference mitigation techniques as a result of this rulemaking. I believe licensed services will be at risk of significant interference from the operation of BPL systems at the proposed emissions limits, a conclusion supported by the NTIA study. While I appreciate the rules being proposed that require the use of certain BPL interference mitigation techniques, I feel they do not go nearly far enough. I support the additional protections proposed by the NTIA, such as supplemental emissions limits in various frequency bands, additional coordination procedures for deployment areas including advanced notification of deployments, and certification of compliance by BPL operators as opposed to manufacturer verification. Finally, I am not nearly as sanguine as is the NTIA that adoption of even these additional rules will allow compatible and harmonious operation between unlicensed BPL systems and licensed users. Even NTIA concludes that, *“Further regulatory action may be needed after additional studies are completed and additional*

experience is garnered'. For example, the development of future ionospheric propagation interference modes as the BPL deployment base grows. To this point I must ask, if it's a bad idea in the future, why is it a good idea now?

Thank you for the opportunity to reply to comments of this proceeding.

Sincerely,

Wayne Greaves
San Patricio, NM