

Before the
Federal Communications Commission
Washington, D.C.

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

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Introduction

I am submitting these comments on the Commission's Notice of Inquiry (NOI) in ET Docket No. 03-104. I am an electrical engineer with BSEE and MSEE degrees from the University of Pennsylvania and Drexel University, respectively, and am employed full time in the design of control systems for the transportation industry. I am also coinventor of US Patent 5,358,202. I am also an amateur radio operator, first licensed by the Commission in 1967, and currently hold an Amateur Extra class license. My interest in amateur radio at an early age led me to pursue a career in electrical engineering.

Interference Concerns

The proposed access BPL systems differ from existing systems such as carrier-current broadcasting in several important ways. The new systems use RF energy in the HF and low VHF part of the spectrum, while existing systems have used MF and LF exclusively. The new access systems are intended for general coverage of large customer areas, rather than point-to-point communication or broadcasting to a limited area, and use the medium voltage distribution system as well as the low-voltage system. The proposed systems use wideband modulation schemes which do not identify themselves. All of these factors, plus the typical structure of the electrical distribution system, add up to a system that will radiate high levels of broadband RF over a wide area throughout the HF and low VHF spectrum. Unavoidable harmful interference to licensed services such as the amateur radio service is virtually guaranteed by such systems unless measures such as spectrum masking (suggested by the IEEE Power System Relaying Committee) are used. The electric power distribution system can be expected to act as an effective antenna for the radiation of the BPL system RF, resulting in unavoidable harmful interference to licensed radio services including, but not limited to, the amateur radio service.

Tests and interference prevention measures need to be implemented before deployment of any access BPL systems. Yet none of the field trials of BPL systems in the USA have included interference studies or included observation or measurement by amateur radio

personnel. Similar problems have already arisen with small-scale in-building PLC systems such as HomePlug.

Existing Part 15 limits and regulations are primarily intended to limit incidental RF radiation from localized sources such as consumer electronic devices. Access BPL systems are not localized. In-building BPL systems can be expected to behave in similar fashion but on a more localized scale.

Interference from Part 15 devices is often remedied by moving, shielding and/or filtering the device, replacing it with one with lower RF radiation, or simply turning it off. These options will not exist with the proposed BPL systems. The pervasiveness of electrical power distribution means that interference, if allowed to occur, will affect everyone over a wide area, whether they are users of the systems or not. Therefore, the acceptable levels of radiation from BPL systems should be far below that now authorized for Part 15 devices. Competing broadband technologies such as cable and DSL are not permitted to radiate harmful interference to licensed users, nor to exceed current Part 15 levels, and there is no reason to justify an exception for BPL systems.

Conclusion

While the potential of broadband technologies needs to be explored and new technologies encouraged, such exploration and deployment must not be allowed to interfere with the legitimate use of the RF spectrum by licensed radio services. The RF spectrum is a finite public resource, and should not be polluted by unnecessary manmade interference.

Respectfully submitted,

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