

July 25, 2003

Federal Communications Commission Washington, D.C.

Re: Docket 03-104

Dear Commissioners:

I am writing to express my concern that the Commission may amend its rules governing Part 15 devices (i.e., an increase in permissible power and radiation limits) in order to permit implementation of broadband communications over power lines (BPL/PLC) without giving due consideration to the adverse impact such changes will have on radio communications by other, licensed users of the HF radio spectrum and without requiring real and substantial safeguards to protect other users of the HF radio spectrum from interference by BPL/PLC.

The proposed BPL/PLC system will have to operate in the presence of existing systems that often transmit and receive weak signals. The approach for power line communication will not operate successfully in this environment for these reasons:

(1) Well-documented studies in Europe and Japan have shown that BPL/PLC causes significant harmful interference to HF radio communications. Power lines were never designed for communications and offer no inherent shielding against radiation. This means that power lines make an excellent antenna for communication use between 2 to 80 MHz. European measurements have found the RF radiation levels range (20 to 40 dB) above the commonly accepted NB 30 EMI Standard. These levels caused a massive increase in the noise floor across the HF spectra that had the effect of significantly reducing receiver sensitivity.

(2) Moreover, BPL/PLC has been shown to be highly susceptible to disruption and interference from other signals in the HF radio spectrum. In addition to the transmitting effect of power lines used in power line communication, these same power lines also work as receiving antennas. As a result, they provide no protection from interference by licensed users of the spectrum. For example, amateur radio operators located nearby power line communication users when transmitting levels well below the maximum permitted will likely prevent reliable operation of these services. When this occurs, consumers will not understand why their service does not function properly.

(3) Analysis of interference between radio spectrum users and power line communication is complicated, particularly when complex wideband waveforms will be employed in power line communication. Good engineering practice calls for the use of shielded transmission lines such as coaxial cable of appropriate quality to convey wideband digital communications. The cable TV industry employs this practice. When their systems are installed properly and maintained adequately, the result is no interference from the CATV system or to the CATV system. Such performance is not possible to obtain using power lines as proposed for BPL/PLC.

Summary: I believe it is unreasonable to put virtually the entire HF spectrum at risk for BPL/PLC communication. Prudent analysis and evaluation will show that this proposal is not compatible with the amateur radio service nor to other users of the spectrum, some of which require only convenience but others that provide communication critical to human life and well being. It is not reasonable to require earlier players in sensitive radio services to accept major disadvantages. I have attempted to show that this technology can not peacefully coexist with established technologies and should not be implemented in the present form.

This commentator is a licensed radio amateur and holds a Masters Degree in Engineering. Prior to retirement career experience included design of automated

RF test facilities and design of interoperability test facilities for data communications equipment.

Thank you for your time and consideration.

Sincerely,

Jeffrey W. Kelly
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