

## Comments Regarding NPRM, ET Docket No. 04-37

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April 8, 2004

Commissioners  
Federal Communications Commission  
Office of the Secretary  
445 12<sup>th</sup> Street, SW  
Room TW-204B  
Washington, DC 20554

**Dear Commissioner,**

Following are my comments on NPRM, ET Docket No. 04-37, concerning amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line (BPL) Systems.

### **Background and Qualifications:**

Michael J Sparling: EE, Electronics Design and Test Engineer, First Class Commercial Radiotelephone Operator License P1-15-18686, Extra Class Amateur Radio Operator License W6LVW and NARTI (National Association of Radio and Telecommunication Engineers) certified Engineer Class 1 with both Master Endorsements.

### **At Issue:**

The BPL technology, suggested in this NPRM, uses broadband HF (High Frequency, a.k.a., Short Wave) transceivers connected to miles of open wire power lines to deliver Internet data signals to and from home and business transceivers connected to these lines. These HF BPL signals cover the entire HF radio spectrum and radiate into the environment. This NPRM further suggests that part 15 rules should be eased to allow this technology to compete with HF communication services, even though it is not, itself, a wireless service.

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## **Position:**

I object in the strongest possible terms, to NPRM 04-37 and any deployment of BPL technology in the HF radio spectrum.

## **Discussion:**

Unfortunately, because HF BPL signals are NOT passed through shielded transmission lines, the laws of simple physics dictate that only miniscule amounts of their transmitted energy actually reach their destination. Instead, the vast majority of these HF BPL signals are radiated into the environment from the open wire power lines that act like antennas. To HF radio receivers, these signals appear like broad-spectrum noise that not only create horrendous local interference, but also are propagated, via the ionosphere, to create interference to other arias of the earth as well, especially during the peak years of the sunspot cycle. If HF BPL were extensively deployed, this radiation would significantly increase the noise floor and degrade HF radio communication around the world. It should also be understood that the HF BPL technology, in turn, is also very sensitive and vulnerable to interference caused by the legal transmissions of licensed HF radio services. Simply put, HF BPL is not compatible with the existing and emergency HF radio communication. Those people who support the deployment of HF BPL simply do not understand the HF interference consequences and/or are not aware of other currently available alternatives for Internet communication.

Up until now the FCC position has been to protect the HF radio services from noise generated by sparking, arching power lines. The FCC has sent stern warnings with the consequence of fines to public utilities companies to keep their lines clear of HF radio emissions. It is sadly ironic that, contrary to this position, the FCC is now promoting an HF BPL technology that would allow electrical power companies to generate significantly higher, harmful HF radio interference that, up until now, was strictly forbidden. This makes for an extremely contentious situation and would require an overwhelming oversight effort by the FCC to keep up with and resolve HF BPL interference problems. Is the FCC really ready to create and accept this regulatory "nightmare?"

Nuances were added to the original HF BPL proposal, in this NPRM, that suggest that selective filtering could be developed and installed at the HF BPL transceivers to minimize interference to and from certain, selected licensed HF radio services. The problem with this concept is that at HF frequencies, open wire power

lines are typically NOT linear transmission channels - corroded connections and leaky insulators are but two examples of such non-linearity. Simple physics again dictate that non-linearity creates distortion of the transmitted HF BPL signal that, in turn, creates spurious signals that fall within the very HF frequency bands that the selective filtering is supposed to protect.

It should also be pointed out that HF BPL technology is really a "latecomer" to the market of communicating Internet signals that would compete with other, already existing, non-interfering technologies like telephone DSL, CATV, Direct Satellite, fiber-optic and microwave Wi-Fi networks. For instance, the Wi-Fi technology is already being built right into the processors of the new computers that are now being sold. Major hubs or "Hot Spots" are already being setup all over the world by major companies, hotels and airports. Companies like SMC, Linksys, D-link, Netgear, Belkin, U.S. Robotics, Toshiba, Hawking Technology, AmbiCom, Buffalo Technology, SanDisk, Microsoft Networking, IOGear, StarTech, TRENDware, Apple, AT&T, Telex Communications, Motorola, Sony and others, making a multitude of 802.11b single band, 802.11a/b dual band, or an 802.11b/g dual mode Wi-Fi CERTIFIED wireless LAN networks, hubs, routers, broadband routers, PCI adapters, PCMCIA adapters, USB adapters. Indoor omni-antennas, indoor flatbed antennas, corners antennas, standard bridge base stations, wireless access points, DSL gateway routers, wireless firewalls, wireless print servers, wireless components like cameras and printers, all running at 2.4 GHz.

So "why in the world" would we want to drop down to lower frequencies to create a BPL service that would cause severe and harmful interference to existing and emergency HF radio services? Frankly, by comparison, HF BPL is a "lame horse" right from the "starting gate." Especially when other new, potentially non-interfering, BPL technologies are emerging that use the super high microwave frequencies. At these frequencies, long wires, like power lines, act much more like conduits than antennas. For those signals that are radiated, propagation at microwave frequencies is local, line of sight and not like HF signals that are reflected back to earth by the ionosphere. Also, the microwave bands are infinitely broader and much more suited for broadband data signals than the HF radio spectrum. Transmissions in these microwave bands are already authorized and may not require a NPRM at all. Also, because of operating frequencies, microwave BPL signals would not cause harmful interference to existing and emergency HF radio services.

## **Alternatives:**

If there must be BPL (rather than wireless), then, as an alternative, I would recommend a BPL technology that utilizes the super high microwave frequencies where frequency allocations already accommodate the transmission of broadband data signals.

Also, the FCC should seek legislation or rule to allow access to the electrical power distribution right of way and encourage the deployment of optical (fiber optic) transmission lines. This would provide Internet access at speeds vastly superior to any HF BPL technology. The best part is that this optical technology already exists.

## **Conclusion:**

In conclusion, I must again object to NPRM 04-37 and any deployment of BPL in the HF radio spectrum. HF BPL is simply NOT compatible with HF radio services. HF BPL signals belong only in shielded transmission lines, not over open-wire power lines that radiate as antennas.

So finally I must implore you, the FCC commissioners, NOT to authorize open wire BPL in the HF radio spectrum. Because of the saver interference issues, HF BPL is a bad idea that is fatally flawed! To authorize HF BPL would not only be extremely contentious and a burden on FCC resources, but would be a travesty to all existing and emergency HF communication services of national, if not global proportions.

Regards,



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