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Honorable Michael K. Powell
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

COMMENTS IN THE MATTER BEFORE THE FCC:
REFERENCE NPRM ET 104, ET 04-37

Dear Chairman Powell,

I am writing to you about the above captioned NPRM. I respectfully request that I be allowed to register my comments as being AGAINST the above matters. I further request that the FCC deny this petition forthwith. My comments that support this rightful conclusion are as follows:

The concept of BPL transmission over power lines would be a disaster if the FCC allows any part 15 reductions as proposed. The proponents of this system simply are unable to mitigate the laws of physics. If they told you that they did or they can do so, they did one of two things to you and the rest of the commission. They either told you in gross error, or they perjured themselves and lied to you. It is not a matter of if the BPL system will radiate energy; it is a matter of when it will radiate energy. It will start as soon as the system is switched on. To allow a reduction on the part 15 protection is an unconscionable act. It opens up a Pandora's Box that I am afraid can not be closed again. Part 15 is there for everyone's protection. Licensed services that have had use of the effected spectrum for years deserve protection from unintentional radiators.

I have personally heard the interference that BPL puts out on the air. I can report that the level is unacceptable, even at sub part 15 levels! The FCC would be doing a disservice to the licensed users by allowing these devices to operate.

The FCC would not be acting in the best interest convenience and necessity of public by allowing any relaxation of part 15 rules to accommodate BPL or any service that radiates any unwanted spurious energy in the HF spectrum.

The proponents of BPL indicate that they can "notch out" certain pieces of radio spectrum. This is fine on paper. It might even work in a laboratory or controlled test environment. However I do not know how their system will work when all applicable licensed users (not just the radio amateurs) request to have spectrum excluded from their use. At this point the BPL system will not work. There is also the issue of "Harmonic Radiation". Radio signals emit energy on their primary frequency; for example a signal is radiated on 2.0 Mhz. The second harmonic is 4.0 Mhz, then the third harmonic is 8.0 Mhz, and so on. The power grid

(which in some cases can barely efficiently passes a 60 Hz sine wave signal) is not capable of reducing harmonics that it was never designed to do so!

I am a Cook County Sheriff's Police Sergeant. As a Policeman, I stake my live on the quality of radio system that the county provides. If the BPL system produces a signal at 38.39 Mhz, it will double to 77.79 Mhz. It will double again to 158.58 Mhz, which is just a few Khz away from our licensed frequency of 155.595 Mhz. What will we do when you are in danger, you call 911, the radio operator tries to dispatch me to come to your aid, and I can't hear dispatch because someone is "surfing for pornography" on the web fed by a BPL system?

Even if the power companies were required to notch out spectrum, what about receivers?
Does this mean that if you want to listen to the "Voice of America on your Sony shortwave radio, you need to call the power company so they can send a man out to adjust their BPL equipment accordingly?

The power grid in my part of the country is aged, outdated, overburdened, and poorly maintained. I am afraid to report that we can not trust them to provide basic 60 hertz AC service on an uninterrupted basis. I am at a loss to explain how they can be additionally burdened with RF/broadband responsibilities. With the potential for power spikes, would you trust the modem input of your computer to a 120 volt AC line?

You must consider not only public power grids, but also private power grids. Will BPL be used in a high density environment such as a city or dense suburb? The interference level will increase as more users are added to the system. Furthermore, what about hi-rise buildings? It will be bad enough to have RF hash emanating from wires 20 feet off of the ground. What about 50-100-200 or even 700 feet off of the ground?

The radiation aspect was discussed, now let's discuss received radiation. If the power lines transmit RF off of the lines, they certainly can receive it. How will their system attenuate licensed RF signals that are radiated from licensed transmitters? Will BPL be able to survive in the face of megawatts of ERP (effective radiated power) from a government station like WWV which transmits at 2.5, 5 10, 15, and 20 Mhz? What about next to a 50,000 watt clear channel radio station like WGN? How about the signals generated by Radio Marti in South Florida? Lastly how about the hundreds or thousands of signals 2-80 Mhz emanating from Maritime, International Aviation, Shortwave, Amateur, Military, Government, and Medical/Magnetic Resonance Imaging (MRI) services. What about natural anomalies such as thunderstorms?

Then, the BPL user; will his/her signal be free from being received and decoded by unauthorized parties? Will you trust your credit card information to be transmitted over a radiated wire which a hacker can receive? The military has a truism for intercepted communications. If it can be heard, it can be decoded, plain and simple.

BPL will also interfere with itself. Different signals traveling down an unshielded pair of wires will invariably cross modulate with itself. If different lengths of cable which may make up a wavelength or a fraction of a wavelength are coupled together in phase, the signal will be stronger. It will achieve gain. Then it will really interfere with licensed users.

Several years ago, the amateur radio community asked for an increase in radio spectrum. This is request that the FCC probably receives daily from all services. If RF spectrum was not a scarce finite resource, the FCC probably would accommodate all requestors. The specific spectrum that was asked for was in the 137 Khz range. The ARRL thought that the grant would be a "shoe-in" as no-one really uses these frequencies. This band is used in the UK as a secondary allocation amateur radio band. The power company put up such a vehement argument against this allowance that the FCC backed away from the ARRL proposal. It was later learned that the 137 Khz frequencies are used by the power companies to control transmission of power over long haul high tension wires. Simply put, they did not want "a bunch of hams turning on and killing AC power while they played with their radios". The academic question is; if the power company did not want the radio amateurs transmitting on their frequency, why would we or any other licensed user want them to radiate in our spectrum?

For a cost saving exercise, you need to ask the proponents why didn't the BPL industry specify the 800 Mhz band which is used by cellular telephone services? After all, we have an abundance of manufacturing capability in making UHF/Microwave equipment, so the cost to make equipment here should be substantially less than the uncharted waters of HF. The BPL industry can provide another platform for Cellular service at the same time as they provide broadband. After all, the FCC is all for "increased competition to drive down prices, right? I think we all know the answer as to why this was never done. The Cellular industry would have gone to ever effort, spent every available dollar, and campaigned vigorously to prevent this from happening!

Why does Cable TV use coaxial cable? It is shielded, and if designed and used correctly, it will not re-radiate a signal. If BPL were placed in a coaxial line, it may work OK, and not interfere with licensed services. Coaxial cable and hard-line are expensive. You can bet that if the CATV people could have sent a signal down one or two cheap parallel wires (like a power line) instead of using coax, you can be certain that they would. CATV has been around as we know it since the late 60's.

I am not convinced that BPL will be the end-all savior for bringing broadband to the poor rural areas of the country. BPL needs line "repeaters" strung along the way to receive and repeat the signal so it might be usable. They will need to spend as much money if not more to provide a useful service to the effected area as they would on DSL or Cable modem or fiber. If cable and DSL isn't going to spend the money on transmission to sparse poor rural areas, what makes you think BPL will?

Speaking of fiber, here in Northbrook the local utility spend hundreds of thousands of dollars installing fiber optic cable. It is buried, strung from power poles, popping out of the ground into junction boxes, and it is not being used??!! Why is this? Fiber optic transmission is: clean, free of RF interference, not susceptible to RF interference, incredibly fast, and a high bandwidth capable medium. I feel that broadband (and for that matter HDTV) is much better suited for fiber transmission than inductively coupled RF cable.

If the commission will not take my letter seriously, they should consider asking other countries which allowed BPL and later found it to be a failure. It has been tried in Europe and in Japan. It failed miserably, interfered with spectrum users terribly, and was taken off of the air immediately. Other countries considered BPL but declined, after noting the interference that was generated (particularly in Austria).

In closing, I am not against new ideas, new concepts, and things which make my (our) lives easier. I am not against increased competition. However I am against poorly designed, scientifically unattainable "snake oil" being precipitated by people who do not have any technical concept of how RF works and propagates. I feel that this BPL concept is being pushed by those who are computer fluent, but RF and hardware deficient. I just pray that there are those at the FCC, FEMA, NTIA, APCO, and in the military that are not uninformed about RF matters. Broadband is better utilized on a DSL/cable/fiber platform.

Please deny the above NPRM(S) immediately, and do not allow them to be reconsidered.
Please call me upon receipt of this letter.

Sincerely,

Walter J. Klinger