

Before the FEDERAL COMMUNICATIONS COMISSION
Washington, DC 20554

In the Matter of: (Inquiry Regarding Carrier Current
Systems, Including Broadband Over Power Line) ET Docket 03-
104 Systems.

REPLY TO THE COMMENTS OF
THE ALIANCE FOR PUBLIC TECHNOLOGY
(DOCUMENT # 6514284392)

August 12, 2003

I, as an individual Amateur Radio Operator and a Navy-
Marine Corps MARS member am pleased to reply to comments
filed regarding Broadband over Power-line Technology
submitted by the Alliance for Public Technology (APT).

While I believe that the intentions of the Commission are
fully directed toward the growth of broadband services
resulting in more choices to consumers, I must take
exception to the beliefs that BPL is a premium opportunity
to achieve these goals. I agree with APT's self assessment
that they are not in a position to comment on technical
questions raised in the Notice, however, technical,
engineering, and physics issues cannot be ignored or
overlooked, regardless of best intentions to bring advanced
services and applications to Americans. To do otherwise
is simply irresponsible, and a waste of those very
American's tax dollars.

I commend the APT on their efforts now embodied in Section
706 of the 1996 Act, however I will have to fundamentally
disagree with the aggressiveness promoted in achieving
these ends, with blatant disregard to technical issues and
near certain impact to existing systems and services.

I strongly dispute the APT assertion that Broadband over
Power-Line has the potential to become a strong facilities
based provider in the developing broad band marketplace,
and rather is poised for disruption to existing services
and facilities for the following reasons:

1. Digital signals, however conveyed, are inherently
difficult to restrict to their basic modulation bandwidths
(in this case 2 to 80 MHz) and will cause harmful

interference to services occupying the harmonic multiples of this range. We have often seen 5 MHz digital signals generate receivable energy well beyond 10 GHz via these harmonics. Low manufacturing cost targets are juxtaposed to the application of adequate filtering to control this problem.

2. Coupling of BPL signals to uncontrolled impedance unshielded lines is in effect giving them an antenna. The effectiveness of this antenna is proportional to its length in wavelengths. Most typical power lines will provide multiple wavelength efficient radiators of this energy. In fact power lines will prove to be a lossy medium to convey the desired signal to its intended destination because of this radiation.

It is apparent from difficulties over the past few days that existing power lines are not up to the levels of maintenance that will allow BPL signals to be maintained at a high level to prevent interference to existing services in the frequency ranges specified.

I am not against the use of BPL but urge that prior to any company being allowed to place this service on their facilities that a complete over haul of their system be performed. ie:, no broken insulators, no broken common ground and buried facilities that are over twenty years old and failing with excessive load must be reviewed. The attitude of power company personnel that if the lights go on the problem cannot be with the power line but must be with the equipment that is being interfered with. This is a common problem even after numerous contacts and examples have been shown. Over the past couple of years the FCC has had to admonish power companies to react to interference. Very good maintenance is a necessity to provide BPL without interference to other services.

3. These frequencies by nature are "International" in that very low power (milliwatts) can facilitate communications worldwide. By radiating in this range the BPL providers will become the targets of worldwide interference complaints. But being a non-licensed service, it is not readily traceable, except to the nation of origin. Japan has withdrawn their interest in this technology after realizing its potential for interference both locally and globally.

4. This technology while functional in limited tests, in our experience, will not "scale well". That means the

deleterious effects will grow exponentially with broad deployment. Large areas will in effect become more efficient phased array radiators of this noise.

5. Due to the efficiency of the power lines as antennas at these frequencies, reciprocity says they will also couple or receive existing services' RF power into the receivers of the BPL signals efficiently as well, in all likely hood rendering them inoperative. This will cause licensed users of this spectrum to become the targets of interference complaints from unlicensed and less technically competent users. Our experience has seen this escalate to life threats with firearms over mere television interference complaints against operators working within the FCC rules, and consumers violating the law with illegal cable television taps. Similar episodes are inevitable with BPL.

6. It has been the personal experience of the Amateur community that power utilities have a horriffic record at correcting interference even from corona from damaged utility hardware at 60Hz. It is logical to assume, that when this interference problem covers millions of existing services' frequencies, the FCC's challenges at enforcement will be unbelievable.

While APT encourages the Commission to take action to bolster broadband competition, I encourage the Commission to take the opportunity to employ sound engineering practices (as is currently done by the Commission with similar radiated and conducted susceptibility measurements) for the long term good of the American people. This should include maintaining Part 15 limits at current levels or below.

I agree with APT that the Commission should regulate in a neutral manner, however, this should not preclude proper engineering assessment, consideration to shielding, and emission limits. It is my recommendation that the BPL technology is be field proven, under all circumstances that can happen in the field of power lines. Unless a very real time trial over all types of power line facilities is conducted under the watchful eye of the FCC and selected groups that could be interfered with that BPL service should not be recommended.

Respectfully submitted,

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