

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C., 20554**

18 August 2003

In the Matter of)
Inquiry Regarding Carrier Current)
Systems, including Broadband over)
Power Line Systems)

ET Docket No. 03-104

COMMENTS OF
DOUGLAS J. RENZE

These are Comments of Douglas J. Renze. Please accept these as an amendment to the writer's comments, previously submitted on 10 August 2003.

The writer currently holds an FCC-issued General-class station and operator's license (N0YVW) in the Amateur Radio Service.

I strongly urge the members of the Commission to deny the petition for the expansion of Current Carrier systems for the purpose of expanded deployment of Broadband over Power Lines for the following reasons. A number indicates each comment:

1. **INCREASES IN PERMITTED SIGNALS, AS REQUIRED FOR EFFECTIVE AND WIDESPREAD DEPLOYMENT OF BPL SYSTEMS WILL CAUSE HARMFUL INTERFERENCE WELL OUTSIDE THE FREQUENCY RANGE OF 1.7 MHz-30 MHz IN WHICH CURRENT CARRIER SYSTEMS MAY OPERATE.**

As members of the Amateur Radio Service have learned over nearly a century of history, a poorly-tuned transmitter or antenna will generate harmonic interference well outside the band, in which the transmitter is operating. This means that harmonic signals caused by BPL will likely generate harmful interference at frequencies well above the 30 MHz upper limit for operation of Current Carrier systems.

2. **AN INCREASE IN PERMITTED SIGNAL STRENGTH, AS REQUIRED FOR EFFECTIVE AND WIDESPREAD DEPLOYMENT OF BPL SYSTEMS IS A THREAT TO NATIONAL SECURITY.**

A casual glance at any publicly-available table of frequency allocations between 1 MHz and 80 MHz shows thousands of frequencies allocated to the United States Government on a primary basis. Indeed, publicly-available figures from the National Telecommunications and Information Administration (NTIA), indicate that more than 18,000 frequencies are allocated to the Federal Government in these bands, of which many are allocated to the military and transmit encrypted data, which is sensitive to interference.

Recent tests conducted by the American Radio Relay League (ARRL) have indicated as much as a 35 decibel increase in the ambient noise level in frequencies between 1.7 MHz and 30 MHz. In many cases, this is characterized by loud crackles and pops on received audio, which one observer characterized as being similar in sound to a Geiger counter.

Widespread deployment of BPL systems will interfere with transmissions in this frequency range and may cause vital information to be lost in a time, where national security is a watchword.

3. AN INCREASE IN PERMITTED SIGNAL STRENGTH, AS REQUIRED FOR EFFECTIVE AND WIDESPREAD DEPLOYMENT OF BPL SYSTEMS IS A THREAT TO THE PUBLIC SAFETY.

Many public safety agencies, including police, fire, civil defense, and search-and-rescue agencies have frequency allocations between 30 MHz and 50MHz. Because of the ubiquitous presence of power lines and the harmful interference generated by BPL, these services will likely experience harmful interference as well, in situations where clear communications are essential to life and public safety.

4. PART 15 REGULATION OF CURRENT CARRIER SYSTEMS WILL MAKE IT DIFFICULT FOR THE FCC TO ENSURE COMPLIANCE.

FCC Part 15, under which Current Carrier systems are regulated, governs unlicensed services. Without licensing, and the consequent obligation to properly identify the source of transmissions, it will be difficult, if not impossible, for the FCC to effectively police compliance with 15.209, under which Current Carrier Systems are specifically regulated.

5. BPL SYSTEMS WILL BE SUSCEPTIBLE TO OUTSIDE INTERFERENCE.

By their very design, Current Carrier systems must meet two requirements. First, they must have what members of the Amateur Radio Service refer to as a “wide front end,” that is, they must be able to receive signals over a broad portion of the radio spectrum. Second, because of the low power levels at which Current Carrier systems operate, they must be sensitive to relatively weak signals. Both traits will make BPL systems extremely susceptible to outside interference by other, licensed radio services.

As an example, an Amateur Radio transmitter, which is transmitting at 5 Watts out, would render any nearby BPL installations useless; this is an extremely low power-level. A transmitter transmitting at 100 Watts out – not an unusual power level – would render BPL service useless over a broad area.

Any device, which operates under FCC Part 15 is required to accept any interference, which is caused to it by a station operating in a licensed service. Interference caused to BPL by the legal use of devices licensed in the Amateur Radio Service, as well as in other service, would render a BPL system useless.

6. IT IS ESSENTIAL TO PRESERVE THE UNIQUE NATURE OF THE HIGH FREQUENCY (HF) PORTION OF THE RADIO SPECTRUM.

The HF bands below approximately 30 MHz are unique in the electromagnetic spectrum. Out of the entire electromagnetic spectrum they, and they alone, are capable of worldwide propagation at low power levels without any infrastructure other than a transmitter, a receiver, and an antenna connected to each. This is proved daily by members of the Amateur Radio Service, who make contacts worldwide operating at only a few Watts of Effective Radiated Power. Indeed, to many members of the Amateur Radio Service, this has become something of a sport, called “operating QRP.”

This unique trait makes the HF bands a valuable resource. Man made infrastructure can fail due to catastrophic events, as was shown in the aftermath of Hurricane Andrew and 9/11. Man made infrastructure can fail due to lack of power, as was shown recently during the recent blackout in the Northeast United States. Man made infrastructure can fail due to war, as has been so tragically shown in parts of Eastern Europe.

In a communication system dependent on a man made infrastructure, failure of the system is inevitable. With so many key points in the system, one will eventually fail, and the more complex the system, the more catastrophic the failure. However, the HF bands provide redundancy in the communication system. When man made infrastructure fails, this portion of the electromagnetic spectrum is available to maintain vital communications with relatively simple equipment – equipment as simple as a home-built transceiver operating CW (A1A).

Because of its unique nature, it is the solemn obligation of the Commission to protect this portion of the electromagnetic spectrum and to encourage the development of new, more efficient, communication protocols, rather than to allow bands capable of worldwide propagation to be polluted by a very few. Indeed, this is the very reason, for which the FCC was initially formed.

7. ALTERNATIVES

Proponents of BPL will argue that the deployment of BPL systems is essential to expanding the information infrastructure to all areas of the United States, which is crucial to economic development.

While I wholeheartedly agree with this rationale for expanded BPL, I strongly disagree with the conclusion that BPL is the best means to accomplish this end.

In my previous comments submitted to the Commission, I noted the existence of other alternatives, including high-speed DSL and the ability of Utility companies, with the consent of their local franchise authorities, to string additional cable along their existing right-of-way. However, I have since become aware of an additional option.

I would respectfully remind the members of the Commission of their recent approval of the Unlicensed National Information Infrastructure (UNII) band at 5 GHz. This band has the capability to accomplish all the objectives stated by proponents of BPL, with none of the drawbacks. The UNII has already been approved by the Commission, and would require no further licensing or testing. Furthermore, because of the wide bandwidth allocated to the UNII (much wider than the bandwidth used by BPL), it has a much higher capacity for information and could, in fact, finally become the "information superhighway" for which we are searching. As an example of the potential of the UNII, I would direct the attention of the Commission to the results experienced in the recent deployment of a Motorola Canopy UNII system in the area of Republic, MO.

8. CONCLUSION

For these reasons, as well as for the reasons stated in my initial Comments regarding this matter, I strongly urge the members of the Commission to deny the Request for Waiver filed on 6 February 2003 by Current Technologies, LLC for BPL.

Respectfully submitted,

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