

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Carrier Current Systems, including Broadband over Power Line Systems)	ET Docket No. 03-104
)	
Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems)	ET Docket No. 04-37
)	

COMMENTS OF VERIZON¹

Broadband over Power Line (“BPL”) promises to be yet another facilities-based broadband platform – in addition to the several other existing facilities-based platforms – poised to challenge the cable companies that dominate the broadband mass market. Although the Commission should encourage the deployment of BPL along with other broadband technologies and services, it must also ensure that this deployment does not interfere with existing and future telecommunications services. Verizon therefore supports the Commission’s proposal for a public database similar to the existing database for Power Line Carrier Systems. If properly implemented, such a database can help identify sources of harmful interference and facilitate resolution of such issues.

The Commission should ensure that the rollout of BPL does not interfere with existing and future telecommunications services, including voice, DSL, and VDSL services. As Verizon explained in its Comments on the Commission’s Notice of Inquiry, BPL clearly has the potential

¹ The Verizon telephone companies are the local exchange carriers affiliated with Verizon Communications Inc., listed in Attachment A.

to create significant interference problems with telecommunications services.² BPL systems use existing electrical power lines as the transmission medium, injecting radio frequency energy on power distribution cables. Because power cables used for BPL are unshielded and unbalanced, these cables may “leak” or emit part of the high frequency energy in the form of electromagnetic radiation (or “radiated emissions”) when they are used to transport the higher frequencies used for BPL (9 kHz to 30 MHz). In addition, the current flowing through the power distribution system may also cause a voltage difference (or “inductive interference”) in telecommunications outside plant cabling, as well as customer premises cabling and equipment.

Through both radiated emissions and inductive interference, BPL may adversely affect a variety of telecommunications services. For example, BPL may potentially interfere with existing voice and DSL service. The high frequencies used by BPL devices may demodulate voice and DSL signals – or extract the low frequency signals from the high frequency signals – and produce “noise” that can degrade voice and DSL services.

BPL may also potentially interfere with the next generation of DSL technology, VDSL or Very High Bit Rate Digital Subscriber Line service. Industry groups promoting BPL have already claimed use of a frequency spectrum that overlaps with the frequency bands for VDSL set by an American National Standards Institute (“ANSI”) accredited standards developer.³ As a

² Comments of Verizon at 4-6, *Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems*, Notice of Inquiry, ET Docket No. 03-104, (filed July 7, 2003).

³ The T1E1.4 Digital Subscriber Line working group of ANSI-accredited standards developer, Standards Committee T1 – Telecommunications, has produced a trial use standard (“T1.424”) which defines the physical layer modulation schemes and transceiver protocols for VDSL. That standard defines the upstream VDSL frequency bands as 25 – 138 kHz, 3.75 – 5.2 MHz, and 8.5 – 12 MHz, and the downstream VDSL frequency bands as 25 kHz to 1.1 MHz, 1.6 – 3.75 MHz, and 5.2 – 8.5 MHz. As the Commission notes, most BPL Systems today operate on frequencies up to 50 MHz. *Carrier Current Systems, including Broadband over Power Line Systems; Amendment of Part 15 regarding new requirements and measurement guidelines for*

result of this overlap, radiated emissions from certain BPL devices have the potential to interfere with VDSL service, particularly where lines are located close to electric power lines used in connection with such BPL devices.

These concerns about interference from BPL systems are not merely theoretical. The Austrian government has stopped a BPL field test because of excessive radio interference, including interference to emergency service radio traffic.⁴ In addition, Japan has reportedly decided not to adopt BPL technology because of its interference potential.⁵

The extent and nature of interference caused by BPL systems in the United States will not likely be known until they are deployed, either commercially or in significant market trials. Verizon therefore supports the Commission's proposed notification requirement on BPL systems. According to the Commission, "[t]he objective of the proposed notification would be to establish a publicly accessible database for Access BPL information to ensure that the location of Access BPL systems and their operating characteristics are identified if harmful interference occurs and to facilitate interference mitigation and avoidance measures."⁶ If properly created and implemented before commercial deployment of BPL systems, such a publicly accessible database can help identify a local BPL system causing interference. The affected parties can then work to resolve the harmful interference through implementation of the avoidance and

Access Broadband over Power Line Systems, Notice of Proposed Rulemaking, 19 FCC Rcd 3335, at ¶ 5 (1994) ("NPRM").

⁴ *Austria Pulls The Plug On BPL*, Conformity (April, 2004), at <http://www.conformity.com/0404.html#austria>.

⁵ *Powerline communications – Electrifying the broadband*, PC Magazine Middle & Near East, Apr. 4, 2004, available at <http://www.pcmag-mideast.com/reviews/review.php?id=EplEpluFuVAyJBNNgf>.

⁶ NPRM ¶ 43.

mitigation technologies required by the Commission's proposed rules. Where the parties are unable to resolve the interference, the Commission should help facilitate such resolution.

Conclusion

The Commission should establish a notification requirement on BPL systems and use such information to create a database to facilitate avoidance of interference.

Respectfully submitted,



Ann H. Rakestraw
1515 North Court House Road
Suite 500
Arlington, VA 22201
(703) 351-3174

Of Counsel
Michael E. Glover
Edward Shakin

James G. Pachulski
TechNet Law Group, P.C.
1100 New York Avenue, NW
Suite 365
Washington, DC 20005
(202) 589-0120

May 3, 2004

Attorneys for the Verizon telephone companies

Attachment A

THE VERIZON TELEPHONE COMPANIES

The Verizon telephone companies are the local exchange carriers affiliated with Verizon Communications Inc. These are:

- Contel of the South, Inc. d/b/a Verizon Mid-States
- GTE Midwest Incorporated d/b/a Verizon Midwest
- GTE Southwest Incorporated d/b/a Verizon Southwest
- The Micronesian Telecommunications Corporation
- Verizon California Inc.
- Verizon Delaware Inc.
- Verizon Florida Inc.
- Verizon Hawaii Inc.
- Verizon Maryland Inc.
- Verizon New England Inc.
- Verizon New Jersey Inc.
- Verizon New York Inc.
- Verizon North Inc.
- Verizon Northwest Inc.
- Verizon Pennsylvania Inc.
- Verizon South Inc.
- Verizon Virginia Inc.
- Verizon Washington, DC Inc.
- Verizon West Coast Inc.
- Verizon West Virginia Inc..