

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
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Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems)	ET Docket No. 04-37
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COMMENTS OF BELL SOUTH

BellSouth Corporation, for itself and its wholly owned affiliated companies (collectively “BellSouth”), submits the following comments in response to the Office of Engineering and Technology’s recent *Notice of Proposed Rulemaking* (“*Notice*”) in the above referenced proceeding.¹

I. The Commission Cannot Ignore Competitive Consequences of the Emergence of Yet Another Provider of Broadband Services

The competitive nature of the broadband market has long been evident. Indeed, BellSouth, as well as many other companies, has filed support in many of the Commission’s open proceedings to demonstrate the competitiveness of the provision of broadband services not only to the mass market but also to small and large businesses. The mass market and small business markets are particularly competitive, with cable companies leading the way through

¹ *Notice of Proposed Rulemaking*, ET Docket Nos. 03-104 and 04-37, FCC 04-29 (rel. Feb. 23, 2004), *summarized*, 69 Fed. Reg. 12612 (Mar. 17, 2004) (“*Notice*”).

cable modem service. In addition to cable companies, wireless companies are continuously making strides through satellite services, line-of-sight services (LMDS), and now through Wi-Fi services. The provision of broadband services over power lines (“BPL”) is yet one more competitive entry into the broadband market. BellSouth strongly favors competition in this ever-increasing and necessary part of our economy. Competition is truly the most effective means of expansion and self-regulation of broadband services. Unfortunately, all competitors are not equal under the law. Bell operating companies (“BOCs”), who compete equally for broadband customers with cable companies and wireless companies, are the only providers of broadband services that are the subject of extensive regulation. This asymmetrical regulation makes no sense in the competitive electronic age that has exploded in the past few years. It impedes the deployment of resources for broadband services, which, in turn, prevents market growth and hinders optimal pricing of these services to consumers.

A fortiori, the addition of another competitor to the existing broadband services market is even more reason for the Commission to eliminate the asymmetrical regulation currently applied only to BOCs. As discussed below, because of having little experience with BPL, BellSouth recognizes only a few potential technical concerns associated with the provision of BPL. Because of these concerns, BellSouth agrees with the Commission’s decision that it “should proceed cautiously” in monitoring its provision. Equally, however, the Commission must be cautious of further strangling the deployment of broadband services with asymmetrical regulation over BOCs when the market will be adding yet another provider of such services to multiple non-regulated providers already in the market.

As to the specific issues addressed in the *Notice*, BellSouth identifies the following concerns that may be present in the provision of BPL. While the proposed rules appear to strike

a fair balance between encouraging deployment of new technology and protecting the existing services and investments, BellSouth is cautious about several potential interference problems that could occur. These problems have been demonstrated in frequency emissions in other industries. Moreover, BellSouth recognizes that there are specific issues that could impact its network directly.

II. With the Introduction of BPL Services, the Commission Must Look to Other Industries and Be Mindful of All Potential Interference Issues Related to Public Utility Networks

A. General Issues Associated with Emissions

While public utility systems are designed for the purpose of distributing something to the public, each of them also acts as a distributed antenna system for unintentionally receiving or transmitting radio signals, or both. Since the public's needs change over time, the design of the network, and consequently its potential to create harmful interference, also changes. Such design changes create the opportunity for imperfections in grounding, bonding, and other measures taken to prevent signal leakage into or out of the network, thus making each change a potential source of interference.

For example, AM and FM radio stations can cause interference to the public telephone networks because the telephone network acts as a large receiving antenna. This type of interference may be caused by imperfect connections in the network; however, such radio transmissions can cause interference even to a properly grounded and bonded telephone network. If the telephone network is receiving interference from radio transmissions, despite being properly grounded and bonded, the telephone carrier must install filters to control the interference received. Thus, while telephone companies have long been coping with interference problems, and the methods for controlling these problems are well established, implementing

corrective measures to address these problems remain very burdensome for the telephone companies.

The cable television industry (“CATV”) also provides a good example of the impacts that interference can cause from both signal ingress and egress standpoint and the precautions the CATV industry has had to take to minimize such interference. For signal egress, CATV systems use the same frequencies inside their coaxial cable that are used by the aviation industry for navigation and communications (108-137 MHz and 225 - 400 MHz Bands). Should the cable sheath become damaged,² or if the connectors work loose due to the effects of wind/temperature cycles, or should an amplifier cover accidentally be left open by a technician, the ensuing cumulative effects of CATV system leakage could create harmful interference for aircraft systems. For signal ingress, CATV systems can receive interference in their upstream and downstream channels from co-channel broadcast systems such as Citizens' Band (CB) radios, public service (police and fire) communication systems, pagers, amateur radio, television and FM radio broadcast signals. The CATV industry has addressed these problems through substantial monitoring, maintenance and reporting programs that encouraged the development and implementation of improved network and customer devices for prevention of leaks. All operators are required to closely monitor their systems quarterly, prevent leakage through regular maintenance, and submit annual reports to the Commission demonstrating compliance with maximum allowable cumulative leakage from their systems.

Because of the nature of the emissions from BPL, BellSouth foresees that similar interference difficulties could be incurred. Utility networks are constantly changed to meet

² This can occur through thermal effects, wear and tear from trees or pole hardware, by squirrels chewing on cables, or any number of other causes.

customer demand. Service entrances are installed, feeder networks are upgraded, and other changes are made to improve the distribution of electrical power. Each of these modifications changes the impedance of the network at BPL frequencies and consequently changes the environment in which the proposed BPL system would operate. As a result, any of these changes provides a new opportunity for interference to other services.

Current power system maintenance and monitoring procedures are focused on maintaining service for electricity customers, and it is unlikely that these maintenance and monitoring procedures would adequately detect or prevent the interference that could be created by a BPL system. For example, today insulation breakdowns often cause impulse noise interference to AM radio and television broadcast reception, yet power companies have minimal monitoring, repair, and prevention processes in place for these occurrences. Accordingly, as the Commission moves forward with allowing the provision of BPL, it will be important that sufficient, enforceable safeguards are implemented to ensure that BPL systems do not become a source of harmful interference for other services.

B. There Are Specific Instances Where BPL Could Cause Interference to the Phone Network

Regarding specific examples of BPL interference, BellSouth has little direct experience with it, and therefore, does not have specific real-life data regarding BPL's potential effect on the telephone network. Accordingly, BellSouth can only examine theoretical possibilities regarding the potential for service degradation through interference.³ Based on its analysis, BellSouth is concerned specifically about two situations where interference from BPL could be a problem to the telephone network.

³ In the real world, scenarios often arise that were not considered in the theoretical analyses. For this reason, we concur in the proposed requirement for *in-situ* testing.

First, a drop wire could potentially parallel a power line for hundreds of feet. In this scenario, the distance between the power line and the drop wire would probably be much less than the 10 meters at which the radiated emissions are to be measured. Although there is no apparent universal agreement regarding the exact amount by which the level of radiated emissions would be increased at a lesser distance as compared to its value at 10 meters, there is no doubt that the emissions would be greater. Given the radiated emissions increase, and the fact that the drop wire is not shielded, there is the potential for service degradation in such a case.

Second, metallic sheaths of telecommunications cables often carry some of the power line “return” current. In some cases, the magnitude of this current can be significant, e.g., over one ampere. The frequency of this current is 60 Hz, with some harmonics. The coupling between the cable sheath and each of the common-mode cable pair circuits is very good. As a result, the “return” current on the sheath results in a significant amount of common-mode current flowing on each of the cable pairs. At 60 Hz, this is generally not a problem; at certain harmonics of 60 Hz, this can result in interference to voiceband services. Given the impedances of the cable sheath (relative to that of ground) at these BPL frequencies, it is unknown whether a similar ratio of BPL “return” current will flow on the cable sheath. If it does, there is the potential for interference. Furthermore, this coupling mechanism is not directly controlled via limits on radiated emissions.

While BellSouth recognizes that in most cases adherence to the proposed rules will not result in degradation of service, in the event that interference to an existing service does arise, a publicly available database of BPL systems and their operating characteristics⁴ would be useful in determining whether trouble resolution should even consider BPL as a source. BellSouth,

⁴ See Notice, ¶ 43.

therefore, supports the Commission's proposal to require that such a database be built and maintained as new systems are added. BellSouth contends that for this database to be fully effective, access to the database must be openly available to the public.

CONCLUSION

The Commission is taking appropriate steps to identify and control potential interference, emissions and other problems inherent in BPL technology. BellSouth applauds the Commission's cautious approach and has identified particular concerns that must be addressed as this new technology is rolled out. Aside from these technical considerations, the Commission must acknowledge that the emergence of another broadband technology is further evidence of the growing competition in an already heavily competitive field. The current level of competition – even without the addition of yet another mode of providing broadband service – does not justify continuation of the asymmetrical regulation currently applied to the BOCs; such regulation serves only to stifle the broadband development that would bring the benefits of a diverse and fully competitive market to consumers.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I do hereby certify that I have this 3rd day of May 2004 served a copy of the foregoing

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