

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

In the Matter of)
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 Notice of Inquiry on Broadband Powerline Systems) ET 03-104
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Comments of the Information Technology Industry Council

The Information Technology Industry Council (ITI) represents the top U.S. providers of information technology products and services. ITI is the voice of the high tech community, advocating policies that advance industry leadership in technology and innovation, opening access to new and emerging markets, supporting e-commerce expansion, protecting consumer choice, and enhancing the global competitiveness of its member companies.

INTRODUCTION

ITI applauds the Commission for its ambitious and forward looking efforts to critically examine the nation's spectrum policy and resources. We believe that the Federal Communication Commission's (Commission or FCC) efforts, including the Spectrum Policy Task Force, will help improve the management and assignment of spectrum in the United States and increase access to broadband services for all Americans.

ITI supports policies that will promote the rapid development of affordable, high-speed Internet access. The goal is to ensure that the maximum number of consumers can experience the full potential of the Internet and the information technology revolution. In particular, we support the Commission's proceedings, such as this one, seeking to provide multiple platforms for broadband using existing electrical power lines to provide Internet and broadband services.

THE IMPORTANCE OF BROADBAND OVER POWERLINES

Broadband over power lines (BPL) has the potential to provide a ubiquitous third broadband pipe to homes. Moreover, this technology has the potential to become a last-mile solution throughout the United States, especially for those in rural and isolated areas due in part to the high infrastructure costs of reaching those areas. Connecting rural and isolated areas can provide extended educational and learning services, access to medical information and monitoring, emergency services, as well as e-commerce to those underserved areas. This technology would help connect those under-served citizens to the digital world. Additionally, BPL could provide competition to cable, DSL, and satellite services because of the ubiquity of power lines which are connected to nearly every home in the United States. Finally, BPL serves an important homeland security function by providing a potential redundant data network for electronic communications.

BPL could be an effective last mile solution for rural and isolated areas because of the low density of these small transmitters near licensed services and unlicensed devices. Low density means that the radiated emissions from BPL are too distant or remote to cause significant harmful interference to those services and devices. Therefore, the

Commission may not have to relax its radiated emissions limits to permit BPL to successfully operate in truly rural areas where interference with licensed services is non-existent or insignificant.

In cases where interference would be caused by radiated emissions from BPL, those areas are most likely already served by one or more other broadband pipes. Since the purpose of the Commission's inquiry is aimed at providing access to broadband, BPL technology is a satisfactory approach to deliver digital communications services to those living in truly rural and isolated areas. ITI recommends that the Commission maintain its stated intention to provide broadband using power lines only in cases where other services do not or will not exist in the near future. We believe limiting BPL to these truly rural and isolated areas may eliminate the interference issues that are very likely to occur if BPL is used in less rural areas where other transmitters and receivers are operating.

INTERFERENCE FROM POWERLINE TRANSMISSIONS

While BPL has significant potential to offer a third pipe into homes, there are also concerns that this technology will cause interference to both licensed services and unlicensed devices. ITI believes these concerns are technically well-founded. Several other organizations have also expressed their reservations about the potential for interference from BPL. Accordingly, ITI suggests that special attention should be paid to potential interference to telecommunications, telephony, and cable TV wiring considering the likelihood that these wires will be in close proximity to the power lines on neighborhood distribution poles and in-home electrical wiring. However, if the

broadband over power lines service is intended for customers without telephone or cable TV service, interference to telephone and cable TV lines may not be an issue.

BPL applications that utilize medium voltage overhead power lines may, however, cause interference to licensed and unlicensed services. The use of BPL with overhead power lines would create large antennas with potentially significant radiated emissions as the transmission travels down throughout the lines. This is because power transmission lines are normally unshielded and highly unbalanced at HF frequencies, thereby making them conducive to harmful interference from these elevated radiated emissions.

Potential interference from transmissions over power lines will be propagated by these extended wireline networks or antennas. In fact, the radiated emissions from these extended networks are likely to propagate throughout entire neighborhoods causing potential interference to many electronic devices and licensed services throughout that service area. These radiated emissions are a serious issue that should be addressed and resolved by technical experts to prevent any unwanted interference that could potentially harm nearby licensed and unlicensed services. ITI suggests that the providers of these services work closely with the Commission, industry, and other interested parties to ensure that these services comply with the existing Part 15 rules.

In addition, other equipment attached to the power lines may be directly affected by BPL signaling conducted down the actual cable. Accordingly, as more electronic devices are introduced to a BPL network, more occurrences of interference are likely to occur. The Commission should examine this situation, and in conjunction with technical input from industry and other interested parties, consider a host of mitigation options to

protect potentially affected devices from interference. ITI will provide technical assistance, through its members, to help facilitate solutions to many of the interference issues with BPL. Moreover, ITI generally supports the involvement of all interested parties as a positive approach towards achieving voluntary and consensus solutions.

PART 15 LIMITS PREVENT INTERFERENCE FOR ITE

The current Part 15 limits for information technology equipment (ITE) and telecommunications systems have been very effective for preventing interference from individual electronic devices and establishing a regulatory environment that has fostered the rapid growth in information technology products in the United States. The Commission's Part 15 Rules continue to provide a balanced approach to spectrum allocation, interference protection, and provide stability for manufacturers to design products that will integrate and operate efficiently with existing systems resulting in more long term value for the consumer.

ITI supports the introduction of technologies that will provide broadband services to all Americans, including distribution over power lines. However, this technology should be designed so that it is deployed in compliance with the Commission's Part 15 Rules for interference. ITI suggests that any proposed rulemaking for BPL include detailed procedures and testing methodology to verify compliance to existing FCC rules.

Currently, the Part 15 Rules provide limits for unlicensed devices to prevent interference with other unlicensed devices as well as licensed services. These limits were designed with relatively small interference sources in mind. In those cases where interference does occur from an unlicensed device, it can be easily moved to prevent any

interference. However, in the case of BPL, moving the fixed electrical network is impossible. Therefore, suitable mitigation solutions must be identified and verified as effective to mitigate this interference under the current rules before deployment of BPL systems.

The existing limits for “carrier current systems” were written when only low power, low frequency, and relatively narrow band systems were deployed. New systems being deployed today use significant portions of the available bandwidth and as such, are much more likely to cause interference to other services and devices. Continuing deployment of electronic devices in conjunction with significantly more robust carrier current systems will invariably lead to more instances of harmful and disruptive interference. Therefore, ITI requests the Commission review the emissions limits for these higher frequency carrier current systems similar to the current ITE requirements. We believe such limits will prevent the increasing likelihood of instances of interference from these systems.

ITI supports the Commission’s current Part 15 Rules for ITE, but opposes any modifications of the electromagnetic interference limits for the purpose of supporting BPL deployment. Accordingly, we believe the current rules, providing that BPL systems are classified as ITE, are sufficient to protect unlicensed and licensed services from interference and provide the consistency necessary for the introduction of new technologies and products. ITI suggests the Commission, during its review of BPL, examine carefully and determine whether the conducted emissions limits and test methods need further review. This determination will protect all users of the limited

frequency spectrum from interference and continue to fulfil the Commission's ambitious and forward looking efforts to improve the management of spectrum in the United States.

INTERNATIONAL EXPERIENCES WITH BPL

The European Union and its standards bodies, CEPT, ETSI, and CENELEC have studied approaches for transmitting data over power lines similar to the Commission's proposal. However, at this time, the European Union has not gone forward with any significant deployment of these services. This is largely because of concerns over harmful interference to licensed services caused by radiated emissions from these networks.

Additionally, the specific characteristics of the European Union's electricity distribution network also pose significant technical problems for this service. These technical obstacles have not been resolved in Europe, but should be examined closely by the Commission and service providers here in the United States to identify possible solutions to the unwanted interference that can be caused by BPL service distribution. We suggest a thorough examination of the European model which may provide assistance in overcoming similar technical obstacles in the United States.

In Japan, delivery of broadband over power lines has not proven to be successful without causing significant interference to licensed services. Therefore, Japan has not authorized this type of technology for broadband delivery. The Commission and BPL service providers should also examine the Japanese model in hopes of resolving similar interference issues in the United States with this technology.

CONCLUSION

Finally, the Commission has stated its preference for addressing actual occurrences of interference from unlicensed devices with specific remedies for those instances. ITI supports this approach since it permits unlicensed devices to be deployed as long as those devices do not interfere with other devices and services. We believe this spectrum approach works well in the United States and has resulted in the wide spread proliferation of advanced technology products while fully protecting the rights of licensed service providers.

ITI members are the leading manufacturers of information technology equipment. Therefore, ITI has a keen interest in fostering the rapid deployment of broadband services to the maximum number of American citizens. ITI supports the Commission's proposal to utilize broadband over power lines to accomplish this goal. However, ITI members feel strongly that higher speed BPL technology systems should be deployed and operated within the existing ITE limits as defined by Part 15 ensuring that harmful interference to existing unlicensed devices and licensed services does not occur.