

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

In the Matter of)
)
Inquiry Regarding Carrier Current) ET Docket No. 03-104
Systems, including Broadband over)
Power Line Systems)
)

**NORTH AMERICAN SHORTWAVE ASSOCIATION
REPLY COMMENTS TO NOTICE OF INQUIRY
August 20, 2003**

The North American Shortwave Association (NASWA) hereby submits reply comments to NOI ET Docket 03-104. NASWA submitted its original comments to the NOI on June 30, 2003. NASWA represents the interests of people who choose to get their news and information about other cultures via shortwave radio broadcasts on frequencies internationally allocated by the ITU and the FCC for this purpose.

There are several common threads that have been expressed by multiple BPL proponents that deserve further comment. Many of the proponents of using HF frequencies for BPL transmissions have made the point that their systems work at currently authorized Part 15 signal levels and should, therefore, be immediately authorized for commercial deployment. They assert that interference, if it occurs, can be mitigated by providing notches in the spectral mask for frequencies that are used for amateur radio. Many proudly proclaim that no complaints of interference

from their technology have resulted from their test demonstrations. NASWA addresses each of these assertions in this response.

CLAIM: If a particular technology works at existing Part 15 signal level limits, that technology should be immediately authorized for full commercial deployment.

NASWA Reply: The proponents of immediate BPL deployment are ignoring a stipulation in Part 15 that requires operators of devices causing interference to licensed services to immediately terminate operation until the interference can be cured. Even when a Part 15 device is operating within permitted signal level limits, interference to licensed services can and will occur as NASWA, ARRL, and others have pointed out in their comments.

The FCC will be required to enforce this provision of its rules if BPL operators do not respond to interference complaints in a timely way. There are hundreds of thousands of amateur radio operators and millions of shortwave listeners who could be complaining. Are BPL operators prepared to terminate their services in a timely response to such complaints? Does the FCC have sufficient enforcement personnel and budget to adequately police BPL providers who do not respond to complaints? (NASWA is reminded of the FCC enforcement quagmire that exists in the 27 MHz Citizen's Band. Once the egg is out of the chicken, you cannot stuff it back in.)

NASWA makes the following recommendation: Until the industry can prove that interference will not occur to frequencies allocated by the ITU for international HF broadcasting, the FCC must ban the commercial deployment of this technology at any level, Part 15 limits notwithstanding. Analysis has shown that interference will be caused to shortwave listeners in typical home listening environments from BPL systems using the 2-30 MHz spectrum and operating at levels already

permitted by Part 15. Only when BPL technology is proven to be interference free at existing Part 15 limits can BPL be deployed, and only then can relaxed Part 15 limits even be considered.

CLAIM: Many BPL proponents assert that interference, if it occurs, can be mitigated by providing notches in the spectral mask for frequencies that are used for amateur radio.

NASWA REPLY: Several questions arise from this assertion. If 30 dB notches can largely mitigate interference to amateur radio services, why did not the BPL proponents promise to provide similar protection to international broadcast services? In NASWA's original comment, filed June 30, 2003, it was noted that the spacing between home power wiring and portable shortwave receivers with their self-contained whip antennas would make the mitigation of interference to such radios very difficult. A back-of-the-envelope analysis shows that approximately 70 dB of protection referenced to currently authorized Part 15 levels would be required due to the close spacing of the receiver antenna to the house electrical wiring. Are BPL proponents prepared to provide this degree of protection to the international broadcast bands?

When the ITU or the FCC changes allocations, can BPL providers adjust the protection windows without costly modification to the physical plant? One proponent said that they could shift the protected windows by remotely updating the software in their modems. Will all BPL providers be able to make that claim?

NASWA recommends that BPL providers be limited to signal levels that are 70 dB below current FCC Part 15 specifications in the internationally allocated HF broadcast bands. NASWA further recommends that any interference mitigation schemes be frequency agile without costly hardware modifications. To do any less

will constrain the FCC's and the NTIA's future ability to reallocate spectrum as new needs evolve.

CLAIM: Many BPL proponents have observed that interference will not be a problem because there have been no complaints of interference from their test demonstrations.

NASWA RESPONSE: The fact that there have been no complaints proves nothing. As the Secretary of Defense said in a recent news conference when he was questioned about where all the weapons of mass destruction are, "Absence of evidence is not evidence of absence." The absence of interference complaints is not evidence of the absence of interference.

The detailed technical nature of the signals used for BPL transmission has only been described in general terms in the literature because most of the proponents consider their particular technology to be proprietary. Some experimenters are using multiple discrete modulated carriers. Others propose a pseudo-noise spread-spectrum approach. It is unlikely at the present stage of development that if interference was experienced, that anyone other than an engineer associated with the BPL technology under test, could identify the source as being BPL signals.

There is qualitative evidence of interference from at least one existing demonstration site. As stated in comments filed on July 7, 2003, AMRAD performed some testing in Potomac, Maryland and found that the test BPL installation radiated signals in the HF band. The BPL signals radiated were impulsive and sporadic, with bursts correlated with packet transfers. The radiation bands were centered on 5, 9 and 11 MHz that nominally correspond to international shortwave broadcast bands.

There is also some evidence that at least one BPL proponent may actually have tried to prevent the discovery of interference. In their comment of July 7, 2003 ARRL reported, “ARRL has not received significant encouragement from the utilities sponsoring the field tests in the United States, despite efforts to conduct cooperative studies.”

NASWA questions whether, if interference existed and could be recognized as emanating from the BPL experiment, the interference would have been reported. If a non-technical shortwave listener hears a new, unidentified interference on the radio, there is no way of knowing where that interfering signal is coming from.

None of the comments by BPL proponents address how they have proactively facilitated the reporting of interference complaints. Have BPL proponents conducted surveys in neighborhoods where the experimental demonstrations are in progress? Have articles in local newspapers been published to alert shortwave listeners to the new technology and what the interference might sound like on a shortwave radio? Have addresses and telephone numbers been provided to the community to facilitate interference reporting? If interference were recognized, would listeners know whom to notify? The only conclusion that can be drawn from the proponent’s comments is that they have not made such efforts.

NASWA consequently repeats its earlier recommendation made in our June 30, 2003 comments: BPL must not be deployed commercially unless and until the industry clearly shows in open demonstrations that their systems will not interfere with shortwave radios operating on self-contained whip antennas in close proximity to home power wiring. Only after successfully demonstrating that BPL will not interfere with shortwave reception on ITU and FCC-allocated international

broadcasting frequency bands, at existing Part 15 levels, can any prudent consideration be given to increasing the authorized levels. The test demonstration setups should be used to directly measure the available interference-free margin of a particular BPL implementation and those results used to guide establishment of any relaxed limits.

Respectfully submitted,

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