

To the Commissioners of the FCC,

I respectfully submit the following comments in response to the Commission's Notice of Proposed Rule Making (NPRM), ET Docket 04-37, released 23 February 2004. My name is Ronald Majewski and I am interested in this matter because I am an active amateur radio operator and a practicing electrical engineer.

I applaud the Commission for taking a conservative approach and proposing that emissions from Access BPL systems be governed by the existing limits found in Part 15. However, I believe that the power lines that will carry Access BPL systems will not behave as point source radiators, but rather will behave as line source radiators -- especially at frequencies in the lower third of the notional BPL operating spectrum of 2-80 MHz. I base this assertion on my direct experience building long wire radio antennas and then successfully using these antennas to communicate around the world using extremely low power (5 watts or less). In addition, basic electromagnetic theory also supports this assertion. Since there seems to be uncertainty over this issue, further study and more detailed field measurements would seem to be indicated *prior* to deciding emission standards. If Access BPL systems do, in fact, behave as line sources, then adoption of more stringent emission limits would be in order.

I am concerned with a seemingly new interpretation of Part 15 being offered in the NPRM. In the past, the operating parameters of new Part 15 devices had to be configured so as to avoid interference to licensed services from the day one, making interference mitigation schemes unnecessary. I believe this is why existing Part 15 devices have been able to operate with a minimum of problems. With Access BPL, it appears that the Commission is admitting and permitting interference to licensed services from its launch, then introducing the concept of interference mitigation as a way to establish compatibility. It does not seem right that licensed spectrum users will have to show that unlicensed users are causing interference, then wait for some (unspecified) amount of interference mitigation to come from the unlicensed user.

I was distressed by paragraph 35 which states in part:

"In considering this interference potential, we note that ARRL acknowledges that noise from power lines, absent any Access BPL signals, already presents a significant problem for amateur communications. We therefore would expect that, in practice, many amateurs already orient their antennas to minimize reception of emissions from nearby electric power lines."

Once Access BPL is deployed, particularly in urban and suburban environments, it is difficult to see how *any* antenna orientation will minimize interference. Licensed users will be surrounded by lines and repeaters carrying BPL signals. In fact, many antenna installations will be unable to be reoriented. Also, this paragraph seems to be a tacit admission that power lines already do not meet the radiation standards of Part 15. In reality, they don't. It is easy to write on paper that systems like the power grid must

comply with Part 15, but it is an entirely different, complicated, and labor-intensive (expensive) problem to actually make an entire network noise free. This is not a promising starting point for deployment of Access BPL. That is, the approach that interference will be mitigated by some unspecified amount as it is uncovered by licensed users of the spectrum. That's not happening now without BPL, so why will it magically start after BPL deployment?

Also missing from the NPRM is a clear statement of proposed rules governing harmonics and intermodulation products from Access BPL devices, including how such undesired signals should be measured. All signal generators -- particularly digital signal generators -- produce these undesired and potentially harmful products. Only a clear statement of requirements, good product design, and documented verification of performance by direct measurement will eliminate this issue as a concern. I respectfully ask that the Commission correct this oversight in the NPRM.

In paragraph 43, Ambient indicates that its equipment will be able to notch out individual frequencies "on the fly" in response to short term changes in the RF environment. This is an attractive capability. From an amateur radio perspective, however, such a capability would not completely mitigate Access BPL interference. This is because about half the time is spent transmitting and the other half *listening*, typically to a weak signal near the ambient noise floor. It is hard to imagine that such a weak signal would be detected and notched by the BPL equipment.

I agree with the proposal made in paragraph 43 to establish a publically accessible database for Access BPL information including system location, operating characteristics, etc. Such a database should also include specific contact information for reporting interference. A web-based system with an additional Email interface would seem to be a cost-effective way of implementing such a database.

Thank you for the opportunity to comment on this proceeding.