Halton Amateur Radio Club
P.O. Box 74011, APO
Georgetown, Ontario
L7G 5L1

Phone number: 905-877-9888

November 16, 2005

Director General, Spectrum Engineering Branch
Industry Canada,
300 Slater Street,
Ottawa, ON K1A 0C8

Subject: **Response to Canada Gazette Notice SMSE-005-05 dated July 19, 2005**
Consultation Paper on
Broadband over Power Line (BPL) Communications Systems

Dear Sir:

GENERAL

The Halton Amateur Radio Club (HARC) wish to comment on the document referred to above. Industry Canada's decisions on the matter of BPL can have a severe impact on the ability of licensed and authorized radio users to receive and communicate on MF, HF and VHF spectrum, and in particular, on the future of the Amateur Radio Service.

The Halton Amateur Radio Club represents over *22* licenced amateur radio operators in the community of Halton Hills who are involved in radio communications for personal enjoyment, as well as for the benefit of our community, and in particular to provide communications during local, national and international emergencies where other communications means have failed.

Having reviewed your Paper and other available literature on the subject*, we* believe that the introduction of BPL with the proposed emission limits will create harmful interference to authorized and legitimate uses of the radio spectrum. In its current state of development, wide-area BPL could have a devastating effect on radio users in the range 2 – 80 MHz and beyond, and deprive them of a legitimate use of this spectrum.

RESPONSE

The following sections follow the numbering in Canada Gazette notice SMSE-005-05:

3. General Description of BPL Systems

No Comment

6.0 Discussion and Proposals

> The Department also seeks comment on any other specific issue or concern relating to the Department's role in the deployment and regulation of BPL systems in general.

The amateur radio service is a significant resource to the local, national and international community, particularly in times of emergency. During major disasters such as the Katrina storm, the Asian Tsunami, and Okanagan fires, amateur radio via MF, HF and VHF networks was often the only communication available during and days after each disaster. BPL systems, in their present form, have the capability of interfering with or totally preventing radio operations. The Department has a substantial obligation to preserve the ability of radio systems to continue operation.

6.1 Equipment Standard and Approval Process

We agree that a technical standard is required for the equipment and the operating system. However, because the power-line is not designed for efficient transfer of Broad-Band signals, it is essential that the installed system be made compliant with a system standard that does not create harmful interference to other licensed or authorized users of the spectrum.

6.2 Prospective Technical Requirements

6.2 (a) Emission Limits

Access BPL systems operating below 30 MHz will be subject to following limits:

Frequency (MHz)	Field strength (microvolts/metre)	Measurement Distance (metres)
1.705-30.0	30	30

Access BPL systems operating above 30 MHz will be subject to the following limits:

Frequency (MHz)	Field strength (microvolts/metre)	Measurement Distance (metres)
30-80	90	10

> The Department seeks comment on the above limits and their suitability for Access BPL systems in Canada. Please provide technical rationale.

The proposed emission limits for BPL systems will create harmful interference to typical MF/HF/VHF signals that are being received by radio operators adjacent to BPL-carrying power lines. Ideally, the emission limits should be 40 dB less, or 0.3 µV/meter at 30 meters.

Most Amateur Radio stations are located within 30 m of a LV or MV power line. A dipole antenna located near a BPL power line (often less than 30 m) will intercept an interfering BPL signal that is

substantially greater than the typical weak-signal from a distant station. An emission level of 30 μv/m would block all reception except for the very strong signals, which are not typical.

6.2 (b) Interference Mitigation Requirements for Access BPL Systems

In addition to establishing appropriate emission limits, the Department is proposing that Access BPL equipment/systems incorporate adaptive interference mitigation techniques to minimize the potential for interference to radio communication users. These include:

- *remote controllable shut-down features;*
- *remote power reduction; and,*
- *notch filtering and/or frequency avoidance.*

The Department seeks comment on whether: (1) Access BPL equipment should incorporate adaptive interference mitigation techniques as described above; and, (2) additional or alternative interference mitigation techniques, if any, should be used to minimize the potential for interference to authorized services. Please provide rationale

All three techniques should be employed, particularly the avoidance of the amateur radio bands, for the reasons given in section 6.2 (a) above.

The Department seeks comment on any additional technical requirements for access BPL system. Please provide supporting technical rationale.

No comment

6.3 Operational Requirements

6.3 (a) Prohibited Frequency Bands

The Department is proposing to prohibit Access BPL systems from operating in specific frequency bands including bands used for aeronautical services, public safety and national defense. The Department believes that this approach is necessary to ensure the protection of safety-related services.

The Department seeks comment on: (1) the suitability of the above approach to protect safety-related services; (2) what other approaches, if any, should be taken to protect safety-related radiocommunications; and (3) what bands, if any, should be excluded from use by Access BPL systems. Please provide rationale.

In times of national or local emergencies and national disaster, amateur radio is a community resource, and should be protected. There are parts of the MF/HF/low VHF spectrum, such as 30 to 50 MHz, where BPL would least affect users. It is recommended that the Department judiciously choose frequency bands to be excluded, and promote BPL in those segments least likely to be affected.

6.3 (b) Geographical Frequency Restrictions and Coordination Requirements

The Department seeks comment on:
(1) What specific geographic locations, if any, should Access BPL systems be prohibited from operating?
(2) As opposed to total ban, should Access BPL systems be able to operate in these locations if specific frequencies were avoided?
(3) What procedure, if any, should be used to facilitate coordination between BPL operators and specific authorized users?
Please provide rationale.

(1) No comment
(2) Operation of BPL would be acceptable if the amateur radio bands were avoided.
(3) The Department must prepare regulations and protocols that require BPL operators to communicate with, and respond to, spectrum users filing interference complaints.

6.3 (c) Interference Resolution

The Department seeks comments on:
(1) its proposal that individuals and organizations refer problems to BPL operators to investigate and resolve matters on a timely basis; and
(2) what other approaches could be taken to ensure the resolution of interference complaints?
Please provide rationale.

(1) If the BPL operator is to be the first point of contact, the Department's regulations and protocols should include time-frames for both the response to a notification of interference and for the action to resolve the interference.
(2) If the BPL operator does not resolve an interference problem in a timely manner, the Department should then intervene, and require the operator to comply.

The Department seeks comment on the establishment of a publicly accessible database and its potential to ensure the timely resolution of interference complaints. In particular:
(1) What specific information should be included in the database?
(2) How could the information be accessed and who should have access to the database?
(3) Who should develop, maintain and manage the database?
Please provide rationale.

The USA experience as reported by ARRL is that the web sites maintained by BPL operators are not readily available to affected parties, and usage is restricted. Therefore, the website should be maintained by the Department.

Conclusion
The Halton Amateur Radio Club is not against BPL per se and recognizes that BPL may benefit some Canadians. However, given the interference problems that have been experienced by radio amateurs in various countries to-date from BPL system radiation, the Halton Amateur Radio Club strongly believes that it is incumbent upon the Department to regulate BPL equipment and systems to minimize interference to all HF radio services from these unconventional, non-radio data and telecommunications systems.

Submitted by:
Robert Scanferla
President, Halton Amateur Radio Club.
Email: va3rjs@rac.ca