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Dr. Robert McCaughern
Director General Spectrum Engineering
Industry Canada,
300 Slater Street,
Ottawa, ON
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**Subject: (Wolseley Repeater Group) Response to Canada
Gazette Notice SMSE-005-05 dated 2005-07-30B
Consultation Paper of Broadband over Power Line (BPL)
Communications Systems**

Dear Dr. McCaughern:

GENERAL

As part of the 50,000 licensed Canadian amateur radio operators, we appreciate the opportunity to comment on this important document. Industry Canada's decisions as a result of this consultation could have a severe impact on the future of the Amateur Radio Service. The problem with BPL as has been shown in several test cases in the U.S. is that it generated interference to the amateur radio spectrum. In some cases this interference has been so bad as to make communications impossible.

We, the Wolseley Repeater Group consider(s) that it must emphasize its concerns that BPL in it's current state of development cannot be deployed without major adverse effect on users of the HF spectrum which include the Amateur Radio Service.

RESPONSE

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

3. General Description of BPL Systems

At this time, the Department is proposing to adopt the following definition for Access BPL systems:

Access Broadband over Power Line (Access BPL): A carrier current system installed and operated on an electric utility service as an unintentional radiator that sends radio frequency energy on frequencies between 1.705 MHz and 80 MHz over medium-voltage lines or over low-voltage lines to provide

broadband communications and is located on the supply side of the utility service's points of interconnection with customer premises.

The Department seeks comment on the above definition and its suitability for describing Access BPL.

“We agree with the above.”

3.3 In-house BPL

At this time, the Department is proposing to adopt the following definition⁷ for In-house BPL systems:

In-house broadband over power line (In-house BPL): A carrier current system, operating as an unintentional radiator, which sends radio frequency energy by conduction over electric power lines that are not owned, operated or controlled by an electric service provider. The electric power lines may be aerial (overhead), underground, or inside the walls, floors or ceilings of user premises. In-house BPL devices may establish closed networks within a user's premises or provide connections to Access BPL networks, or both.

The Department seeks comment on the above definition and its suitability for describing In-house BPL.

“We agree with the above definition.”

6.0 Discussion and Proposals

Suggested Reply: This is the where you have the opportunity to comment on the record of BPL to date, the effect it will have on all HF communications including Amateur Radio. Comment on the effect on Amateur Radio communications in emergencies, you could refer to the Asian Tsunami for instance. This is also the place to comment on any specific standards you may think necessary.

6.1 Equipment Standard and Approval Process

The Department is considering the development of a new Interference Causing Equipment Standard (ICES) for Access BPL equipment. With regard to demonstrating compliance with the technical standards, the Department has a number of options ranging from Declaration of Compliance to Certification.

Industry Canada believes that the potential for interference to existing radio communication services warrants an approach that will ensure equipment compliance with the technical standard. Therefore, the Department is proposing that the certification process be used for Access BPL equipment. The certification process will include the submission of a test report that will demonstrate compliance with the standards in the appropriate ICES.

The Department seeks comment on the proposed certification process and what, if any, alternative approaches could be used to authorize BPL equipment and systems. Please provide rationale.

“Our group feels an Interference Causing Equipment Standard (ICES) is required. The certification process needs to include both the equipment and the installed system. Rationale: It is not necessarily the equipment that radiates the interference rather it is the power lines the equipment uses to conduct the data that radiates interference. Therefore the complete system must comply with the standards.”

6.2 Prospective Technical Requirements

(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	3

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

“Our reply: The emission limits proposed are far too strong. The emission limits should be no more than 1 uV/meter at 30 meters.

Rationale: The average urban lot where the majority of Amateur Radio Operators live is about 50 feet by 100 feet or 30 meters by 15 meters, with medium voltage power lines across the back or front of the lot. That means that the amateur’s antenna would always be inside the maximum emission coverage area. Amateur Radio operators routinely communicate at or just above the noise floor. The noise floor in our urban area here in rural Saskatchewan and probably applicable to all urban areas in Canada is around S 4 on our receivers signal strength meter or 1 uV/m at the antenna.”

(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.

“Our reply: All three techniques should be employed. In addition BPL systems should permanently notch the ham bands or avoid these bands altogether. In any case BPL signals should be below 1 uV/M on all ham bands.

Rationale: See section 6.2 (a)”

The Department has proposed a number of technical requirements to address the use of Access BPL equipment and to minimize the potential for interference to authorized services from deployed Access BPL systems.

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

“No comment.”

6.3 Operational Requirements

(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 radio communications; and
- (3) what bands, if any, should be excluded from use by Access BPL systems.

Please provide rationale.

“In order to co-exist with BPL, as it is currently developed, and protect “authorized users” as stated in para 3 of the intent of this consultation paper, we believe that all authorized users of the HF spectrum must have their frequencies bands excluded from use by BPL systems.”

(b) Geographical Frequency Restrictions and Coordination Requirements

The Department believes that there could be specific geographic areas where Access BPL systems should not be deployed and that coordination with specific authorized users may be necessary.

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.

“We feel that regular BPL probably should not be allowed as there are other systems which are much better, to serve the needs of wideband data users which do not cause HF interference. The Motorola *Powerline LV* system now being testing in the US appears to be radio-friendly.”

(c) Interference Resolution

The Department is considering requirements for BPL operators to address potential interference complaints. In particular, individuals and organizations with complaints would be asked to directly contact Access BPL operators to investigate and resolve problems. If a problem could not be resolved satisfactorily or in a timely manner, the Department would address the problem as an interference complaint under the Radio communication Act.

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.

“Industry should be the first point of contact and should be prepared to resolve the interference within 7 days.”

Industry Canada believes that establishing a publicly accessible database would assist in the timely resolution of interference complaints. Therefore, the Department is of the opinion that a database of BPL installations should be developed and maintained.

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 ARRL experience is that the web site maintained by the BPL operators plays games and is not friendly. See The ARRL Letter Vol. 24, No. 40 October 14, 2005 available on their web site at www.arrl.org.”

Conclusion

“We feel that if BPL is implemented, there should be zero tolerance for interference to the HF spectrum which would include amateur radio as well as other users.”

Yours sincerely,

Jerry Dixon VE5DC

For The Wolseley Repeater Group.