



**Canadian
Association of
Broadcasters**

**L'Association
canadienne des
radiodiffuseurs**

November 28, 2005

VIA EMAIL: DGSE-BPL@ic.gc.ca

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

Dear Sir:

**Subject: Comments of the Canadian Association of Broadcasters:
Canada Gazette Notice SMSE-005-05; 2005-07-30;
*Consultation Paper on Broadband over Power Line (BPL)
Communication Systems***

1. The Canadian Association of Broadcasters (CAB) – the national voice of Canada’s private broadcasters, representing the vast majority of Canadian programming services, including private television and radio stations, networks and specialty, pay and pay-per-view television services – is pleased to have this opportunity to provide its comments with respect to the above-noted ***Canada Gazette*** notice.
2. The CAB has an interest in this proceeding because 244 private over-the-air (OTA) television transmitters on VHF channels 2 to 5 are currently authorized or operating in Canada within the 54-80 MHz band. This frequency band coincides with part of the spectrum within which Broadband over Power Line (BPL) Systems propose to radiate unwanted low-level signals having a potential to create significant interference to OTA television reception.
3. As well, five private radio stations in Canada operate short-wave transmitters in the band 6030-6160 kHz. These stations provide service to Canadian travelers at home and abroad, as well as listeners located in

remote and rural areas of Canada. Again, this is a band within which it is proposed that BPL systems will operate.

4. The CAB has chosen not to respond to all of the issues raised in the *Canada Gazette* notice. Instead, we are addressing certain specific areas that are of particular concern to broadcasters operating licensed facilities within the spectrum that would be prone to interference from Access BPL systems.

Equipment certification process

5. In Section 6.1 of its discussion paper, Industry Canada says:

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

6. **CAB comments:** The CAB believes that Industry Canada should actually require two forms of certification. The first involves the specific electronic equipment used within any BPL system. We encourage the Department to proceed with the development of a new Interference Causing Equipment Standard (ICES) for BPL and to require manufacturers of such equipment to demonstrate, through the filing of suitable certificates, that their equipment will comply. Moreover, the CAB also believes that it is important that Access BPL operators be required to ensure that their entire as-built systems will comply, in all places and at all times, with established unwanted radiation limits. The CAB therefore recommends that BPL operators be required, through the proposed ICES or another suitable standard, to:
 - perform field “proofs-of-performance” with respect to unwanted signal radiation prior to commissioning any Access BPL systems; and,
 - undertake systematic field patrols of their systems, in a manner similar to that currently required of cable television licensees¹, to ensure on-going compliance.
7. **Rationale:** The reason for this recommendation is that the Department does not take it on faith alone that communication systems having a potential to produce unwanted radio-frequency emissions in spectrum licensed to others will always comply with established emission limits. Cable television systems are required to prove, on a regular basis, that they meet unwanted emission standards. At least until there is a considerable

¹ Ref: Broadcast Procedures and Rules, Part 8, Issue 1; June 2005

body of field measurement evidence establishing that this is unnecessary for Access BPL systems, the Department should place the same burden of proof of compliance on these systems as they do for cable television operators.

Proposed restrictions for bands above 30 MHz

8. At Section 6.2 (a) Industry Canada requests comments on specified BPL unwanted emission limits for bands above and below 30 MHz:

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

9. **CAB comments:** The CAB understands that the proposed emission limit for bands above 30 MHz may be very difficult for Access BPL system operators to meet when overhead distribution plant is utilized. Therefore, the CAB recommends that the Department specify that spectrum above 30 MHz may only be utilized over buried distribution plant. Should this not be technically possible due to excessive transmission losses or other reasons, Access BPL systems utilizing overhead power line distribution plant should be restricted to the bands below 30 MHz.
10. **Rationale:** Due to the shorter wavelengths, unwanted radiation from BPL systems will be considerably more difficult to control at VHF. Slight changes in the physical integrity of the power line distribution plant (e.g. dangling broken wires due to wind damage, etc.) have the potential to create significant amounts of local interference above 30 MHz.

Interference mitigation techniques

11. At Section 6.2 (b) Industry Canada says:

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.

12. **CAB comments:** The CAB believes that that, in addition to the adaptive techniques it describes, the Department should give consideration to

several interference mitigation techniques contained in the (US) NTIA's 2003 recommendations². Specifically:

- BPL systems should avoid locally-used radio frequencies;
- the minimum output power required for communication should be the norm, (rather than simply keeping radiation levels below specified limits); and
- BPL operators should ensure that signals are extinguished on downstream power line sections where they serve no purpose.

13. **Rationale:** Problems relating to interference with licensed services can best be avoided if unwanted BPL radiation does not occur on frequencies transmitted by stations that are being received in the proximity of the BPL system. The second and third points above simply address good engineering practices, whereby excessive and unnecessary power levels are discouraged and radiation is limited to those areas where useful BPL service is actually being supplied.

Exclusion of bands from use by Access BPL systems

14. In Section 6.3 (a) Industry Canada says:

The Department seeks comment on: ... (3) what bands, if any, should be excluded from use by Access BPL systems. Please provide rationale.

15. **CAB comments:** The CAB believes that the Department should protect low-band VHF television channels against Access BPL interference, at least until the DTV transition is complete and these channels are no longer widely required for TV. The simplest means of doing this would be to cap the upper frequency limit for Access BPL at 54 MHz. If necessary, a footnote could be added, indicating that this limit will be reviewed as more evidence concerning unwanted BPL radiation above 30 MHz becomes available and/or when TV services no longer utilize this spectrum.
16. **Rationale:** Because of the larger coverage achieved, as compared to high-band VHF and UHF-TV channels, low-band TV channels 2-5 (54-82 MHz) are used extensively throughout Canada, especially by the main national networks. These channels provide much of the analog television

² *Comments of the National Telecommunications and Information Administration, BPL Inquiry*, August 13, 2003; responding to the *Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems*, FCC Notice of Inquiry, ET Docket No. 03-104, April 28, 2003

service that is now available in rural Canada, which apparently is a primary target market for Access BPL. Often these low-band TV signals are relatively weak in the rural areas and therefore quite susceptible to noise-like interference. While Channels 2-4 may not be included in the post-analog TV allotment plan for Canada, Channels 5 and 6 will likely be retained for DTV in rural areas. DTV services using the ATSC transmission standard are particularly prone to complete service outage due to high levels of in-band noise, such as that radiated unintentionally by Access BPL systems.

Geographic prohibitions

17. In Section 6.3 (b) Industry Canada says:

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.

18. **CAB comments:** Please refer to the previous comment regarding the undesirability of BPL emissions in the VHF television bands 54-72 MHz and 76-80 MHz (Channels 2-4 and part of Channel 5). Should the Department conclude nevertheless that it will allow Access BPL to operate in these bands, transmissions should be permitted only in areas located outside the protected service contours of any regular Channel 2-5 television stations, low-power stations or unused allotments.
19. **Rationale:** The chance of leaky BPL systems causing interference to Channel 2-5 TV reception in rural areas will be significantly reduced if there are no BPL emissions above 54 MHz. This is consistent with our previous recommendation that, "BPL systems should avoid locally-used radio frequencies".

Resolution of interference complaints

20. In Section 6.3 (c) Industry Canada says:

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.

21. **CAB comments:** The CAB believes that Industry Canada should expect to be the first contact when consumers experience interference to services that have previously been received without difficulty. If BPL is authorized, it will be necessary for the Department's regional and district offices to be prepared to handle an initial influx of complaints, act as a source of information and be capable of directing complainants to the appropriate BPL system operator.

22. **Rationale:** The CAB considers that Access BPL systems, due to their nature, have a considerable potential to generate interference complaints from the general public. The difficulty for the consumer is always to identify the mechanism that is causing signal impairment. BPL digital signals will produce non-coherent, noise-like interference in consumer receivers, especially analog TV sets. The public will simply not know the source of this noise because they will not be able to decode the message content. It is therefore impractical to think that complainants could refer to a central source of information on BPL (e.g. a publicly-available database), determine the identity of the offending service and then deal directly with the operator. In fact, the first contact that a member of the public will have with anyone on this issue is likely to be the operator of the service that is being interfered with. Broadcasters certainly do not want to incur the expense of being the "front-line" contact for BPL complaints, by identifying that the problem is BPL-related and then referring the complainant to the appropriate operator. This is the job of Industry Canada. If the Department intends to authorize the use of new services that have a potential to cause interference to licensed services then it needs to be prepared to act as the "front-line" contact for any resulting service complaints.

23. Also in Section 6.3 (c) Industry Canada says:

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.

24. **CAB comments:** The CAB believes that Industry Canada should develop and maintain a publicly accessible database of BPL systems operating in Canada. At a minimum, the data for each system should

include the name of the system operator, contact information, a list of the frequencies being used, and GIS data for the geographical area(s) covered by the system.

25. **Rationale:** Please see our previous comment regarding the need for the Department to operate as the “front-line” contact regarding BPL interference complaints. Having a database that can be accessed by knowledgeable affected parties, such as broadcasters, may reduce some of the Department’s workload in this regard.
26. The CAB would be pleased to expand on any of these concerns, should this be desired by the Department.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'D. Keeble', with a stylized flourish at the end.

David Keeble
Senior Vice-President
Policy and Regulatory Affairs

*****END OF DOCUMENT*****