

## **IEEE 802**

Local and Metropolitan Area Network Standards Committee

Homepage at: <http://ieee802.org/>

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Director

Spectrum and Radio Policy

Telecommunications Policy Branch

Industry Canada

300 Slater Street

Ottawa, Ontario, K1A 0C8

Canada

Subject: Comments on Public Consultation Paper “*Consultation on a Renewed Spectrum Policy Framework for Canada and Continued Advancements in Spectrum Management*” (DGTP-001-05)

### **COMMENTS OF IEEE 802**

IEEE 802<sup>1</sup> hereby submits comments in response to Industry Canada’s Consultation on a Renewed Spectrum Policy Framework for Canada and Continued Advancements in Spectrum Management.

The members of IEEE 802 who participate in the IEEE 802 standards process are interested parties in this Consultation. IEEE 802, as a leading consensus-based industry standards body, produces standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless personal area networks (“WPANs”), and wireless metropolitan area networks (“Wireless MANs”).

IEEE 802 is an interested party in this Consultation and we appreciate the opportunity to provide these comments to Industry Canada.<sup>2</sup>

### **DISCUSSION**

IEEE 802 provides below answers to eleven of twenty-three questions in the consultation.

*Q1) What steps can Canada take to further harmonize spectrum allocations, policies, standards and regulations to the greatest extent possible?*

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<sup>1</sup> The IEEE 802 Local and Metropolitan Area Networks Standards Committee (“IEEE 802” or the “LMSC”)

<sup>2</sup> This document solely represents the views of IEEE 802. It does not necessarily represent the views of either the IEEE as a whole or the IEEE Standards Association as a whole.

A1) Due to logistical conditions, harmonization within North America is beneficial, greatest economic benefits to Canadian users will occur with global harmonization. Canadian regulators should continue to promote technology neutrality internationally. Promote mutual recognition of certification processes.

*Q2) How can Canadian interests be further advanced in the international fora responsible for developing standards and regulations for new wireless technologies and services?*

A2) IEEE 802 applauds ICs participation throughout the ITU. While the world still looks at ITU-R as providing the global regulatory framework, additional standards development work is done in other organizations. For example, the IEC/ISO and IEEE 802 standards organization provides numerous rapid technological innovations that have benefited consumers worldwide. We encourage IC to promote these innovations through the ITU process. Additionally, IC should continue to encourage industry participation in standards development groups such as IEEE 802.

*Q3) What additional spectrum should the Department make available for licence-exempt devices and what regulatory and technical provisions should be adopted for their use? Does this include consideration of currently licensed spectrum, and if so, what provisions could be adopted to facilitate transition to licence-exempt operation or band sharing between licensed and licence-exempt operation? Would a device registration process provide sufficient safeguards to licensed operations?*

A3) IC should consider allocating license-exempt status to the current “white spaces”. In terms of license registration process we believe that low power mass marketed consumer products should be exempt from licensing requirements. Higher power commercial operations might be required to register using a device registration process.

*Q4) Would it be realistic to open some of the FCFS fixed microwave spectrum as licence-exempt operations where it may not align with the US market (e.g. some of the reserved 23 GHz band)? How could these installations be controlled so they do not interfere with US-licensed services along the border?*

A4) IEEE 802 does not have a comment.

*Q5) What means could be developed to ensure that licence-exempt consumer equipment in the field operates within established limits (e.g. e.i.r.p, antenna directivity, channel bandwidth, out-of-band emissions) and what flexibility should be permitted?*

A5) In the short-term, we believe the current certification processes are sufficient. In the longer term however, Industry Canada will need to adopt more flexible testing requirements to keep pace with rapid technological innovations, such as cognitive technologies and software-defined radios. There are many methods that can be used to have the radios monitor their “health” and cease operation if certain parameters exceed predefined limits. Looking forward, it is assumed that future radio designs will be software based, and thus be capable of implementing various monitoring methods which can be used to verify correct radio operation. One methodology being advanced that is popular is the use of a policy engine. This technique allows manufacturers to have a single location where radio regulatory policies are stored and from this central location control the radio’s functionality. If various combinations of transmit power, frequency of operation and modulation type are not within predefined limits, the policy engine would not allow the radio to transmit.

*Q6) Should the Department consider existing or new licence-exempt bands with a view to facilitating longer communications ranges for licence-free devices or system applications unique to the Canadian environment, such as rural and remote broadband fixed wireless access?*

A6) IEEE 802 does not have a comment.

*Q7) For which services and in which situations should greater flexibility of spectrum use be afforded?*

A7) IEEE 802 does not have a comment.

*Q8) Under what situations and criteria would it be appropriate to consider extending this greater flexibility to existing licences?*

A8) IEEE 802 does not have a comment.

*Q9) Should the Department extend transferability and divisibility privileges to other licensees? If so, which should be considered the highest priority and what timing would be appropriate?*

A9) IEEE 802 does not have a comment.

*Q10) Are the current privileges associated with both spectrum and site licences sufficiently defined (this may include technical and operation parameters) to facilitate access to spectrum, the ease of trading the spectrum and the flexibility to offer a range of advanced wireless services?*

A10) IEEE 802 does not have a comment.

*Q11) In which areas do you see the Department further improving the FCFS process?*

A11) IEEE 802 does not have a comment.

*Q12) Are there other principles such as non-exclusivity, which can be applied to the FCFS process for authorization of spectrum on an area basis in situations where it would be normally anticipated that a competitive process would be required?*

A12) IEEE 802 does not have a comment.

*Q13) Is there a need to review and improve the current practice of placing roll-out requirements on licensees?*

A13) IEEE 802 does not have a comment.

*Q14) Should the Department expand the use of mechanisms to make available unused spectrum, like it did with the new party cellular policy given in RP-019, which enables an entity to obtain a licence for otherwise unserved or underserved areas?*

A14) IEEE 802 does not have a comment.

*Q15) Given the increased usage privileges offered to licensees, should the Department continue to include deployment requirements as a condition of licence or, alternatively, rely on market forces to ensure that the spectrum moves to the highest valued use and user?*

A15) IEEE 802 does not have a comment.

*Q16) Which technologies have the most promise of facilitating the use and management of the radiofrequency spectrum?*

A16) All of the technologies identified may have great potential. Embedded computing capabilities within radio systems have the potential for improving spectrum sharing. Spectrum management policies need to be adopted that facilitate efficient spectrum utilization without impacting the incumbent users. Cognitive technologies can provide those mechanisms to dynamically implement predetermined policies offering the potential for improved performance.

*Q17) Are there other technologies or technical issues that the Department should be investigating?*

A17) The fundamental grounds for spectrum regulations may need to be redefined to consider new alternatives. Technical issues include how to take advantage of these new cognitive capabilities. For example, geographic based licensing may not be as relevant in a dynamic radio environment. Thus we recommend that IC develop and implement policies and regulations that take advantage of these new technological capabilities expeditiously. Regulations that provide reasonable protection of incumbent users by use of cognitive techniques need to be enacted.

*Q18) Which technologies seem the most appropriate in meeting the challenge of accommodating additional mobile and wireless access users in the VHF/UHF bands?*

A18) Cognitive Radio offers the communications agility to most efficiently share the spectrum, and adapting to the available RF environment in the current land mobile bands. Some modulation technologies are more efficient than others permitting shorter channel occupancy. Adaptive antenna technology may also enhance spectrum reuse.

*Q19) Should the definition of “rural” (and “remote”) to describe areas with unserved or underserved communications, be based on population density as measured by Statistics Canada? What would be a practical approach for implementation?*

A19) While population density, as measured by Statistics Canada, does adequately define rural and remote locations, in regards to broadband services, it is unclear as to whether or not the greatest numbers of “underserved” Canadians live in rural or remote locations. IC should also diligently monitor suburban

environments that are beyond the reach of traditional broadband service areas (e.g. outside the reach of DSL service). Anecdotal evidence suggests that greatest number of underserved households may lie in these areas.

Some rural and remote areas may be well served because of demand for high speed communications that support a competitive marketplace. In these cases, subsidies and relaxed policy rules on spectrum usage would be unnecessary.

More important to increasing national connectivity is additional granularity in the definitions and policies that describe un-served or underserved areas. A practical approach to implementation that IC may want to consider is to develop a classification that does not define unserved or underserved based solely on geographic considerations. Among the factors that IC may want to consider in developing a new definition are the following:

- throughput (e.g., 1.5 Mbps or greater),
- number of homes/ businesses passed by broadband (rather than postal codes or less granular geographies)
- competitive environment (more than 1 service provider)

We believe that policies based upon a more stringent classification would be beneficial.

*Q20) What policy and regulatory treatment would create conditions that best promote the extension of modern communication services to rural (and remote) areas?*

*(a) For example, should spectrum policies vary by geographic area according to the relative level of spectrum congestion or the demand for spectrum?*

A20a) Yes to both proposed methods.

*(b) In what manner should the technical and/or operational parameters for spectrum management policies and standards for wireless installations be relaxed in rural (and remote) areas?*

A20b) In remote areas there are situations with very limited incumbent services which may allow relaxed standards or higher powers in those areas for fixed devices.

*Q21) Should the Department require that the licensing process for public safety systems consider the needs of the broader public safety community over larger geographical areas?*

A21) IEEE 802 does not have a comment.

*Q22) Should the Department adopt standards which include the aspect of interoperability of public safety mobile systems?*

A22) Interoperability is very important to IEEE 802. An installed interoperable set of communication devices can be planned to become part of the the public mobility system in time of crisis. This is a principle recognized in Canadian laws on radio stations.

*(a) Should these standards be open standards to ensure that equipment from various vendors can operate on the same system?*

A22a) Yes, IEEE 802 favors interoperability standards and welcomes any participation by vendors, users and any other party, including designers of public safety systems. Devices complying to interoperability standards could be used to extend the reach of the public safety systems as a pre-deployed element of these systems. For example, after a major disaster, allow authorities to disseminate directives and allow people to interact on such a system to communicate and find relatives, assistance and report situations to authorities.

*(b) Should the Department, through its regulations or licensing process, ensure that interoperability is included as an aspect of the design of public safety systems?*

A22b) Yes. Without planned interoperability, the deployment of devices has very limited value as an extension of the public safety system. With interoperability and connectivity, an open standards based set of devices can prove to be an efficient extension of the public safety system. In addition, interoperability can provide “emergency broadcasting” style connectivity to the public. Regulations and licensing are valuable means to ensure that goals are met.

*Q23) Should the Department identify common spectrum in the VHF and UHF bands (i.e. common to both Canada and the United States) to be used and shared in border areas for interoperability purposes, recognizing that currently spectrum in the VHF band is not aligned and that spectrum in both the VHF and the UHF bands is highly congested in densely populated areas?.*

A23) IEEE 802 does not have comment.

Respectfully submitted,

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