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Director, Spectrum and Radio Policy, Telecommunications Policy Branch
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The British Columbia Wireless Network Society thanks Industry Canada for the opportunity to respond to DGTP-006-06, "Proposed Spectrum Utilization Policy, Technical and Licensing Requirements for Wireless Broadband Services (WBS) in the Band 3650-3700 MHz".

In general, the Society agrees with the further opening of spectrum for the use of Broadband Wireless Services, however the Society is concerned the use of auction or first-come-first-serve licensing processes will hinder broadband deployment in rural and remote areas, and unfairly limit wireless broadband development in urban areas where service operators already have access to fixed wireless licenses and alternate broadband infrastructures.

The Society generally feels the public interest is best served by having spectrum available on a non-exclusive basis, provided technical guidelines are in place to require contention based devices and that such devices be used for broadband applications only. The Society also believes Industry Canada has a role to play in the further examination of a more open spectrum licensing process in general, and to migrate away from auction processes that limit the ability for independent community networks and local operators to gain access to more spectrum.

The Department proposes to either grandfather or displace existing point-to-point systems in the band 3650-3700 MHz. Further, extensions and/or expansions of grandfathered systems on a case-by-case basis, outside of urban areas, may be permitted. Comments are invited on whether point-to-point systems in the band 650-3700 MHz should be grandfathered or displaced and what conditions should apply in either case.

The Society proposes that grandfathering systems for a period not exceeding 3 years would be reasonable, during which time operators may seek to displace their system in favour of an alternate system, or to establish a partnership with an eligible broadband operator to achieve the capacity required for the displaced system.

The Department seeks comments on types of wireless broadband applications which may be deployed in Canada in the near future.

1. Wireless Broadband Services

Many Communities are still working to develop broadband infrastructures. The use of the 900, 2400 and 5x00 MHz ISM bands for both Point to Point backhaul and Point to Multipoint distribution is quite common, however these bands are subject to interference by other ISM devices. As such we believe 3650-3700 MHz to be valuable for Community Network Operators to continue to build reliable broadband services.

2. Cellular Convergence

We also see the convergence of WiMAX within the cellular telephony domain. Nokia has recently announced availability of WiMAX enabled cellular devices that would allow carriers to offset bandwidth needs from their traditional networks to more agile broadband networks.

In areas unserved by cellular service, community network operators could have the potential to support cellular telephony using the 3650-3700 MHz band thus raising the standard of service to be on par with urban areas.

We also see the opportunity for Community Network groups engaged in building localised and targeted multimedia through WiFi technologies. Community Wireless organizations such as Wireless Toronto, Ile Sans Fil and the British Columbia Wireless Network Society use these technologies to deliver community centric information and advanced network services including Voice over IP. With the availability of WiMAX enabled cellular products, community organizations would be able to broaden their reach to the public at large by supporting WiMAX enabled handsets through their existing media services.

Comments are invited on the proposed options for exclusive and/or non-exclusive licensing and any other options not outlined in the table, with supporting rationale. Any option could be applied to all or part of the spectrum. In the case of urban/rural service areas, the Department seeks the rationale and criteria for defining urban and rural. It should be noted that the licensing process and requirement for contention-based protocols will be determined based on the option selected.

1. Auction

The Society is not in favour of Exclusive Licensing under an auction process. The auctioning of the 3475-3650 MHz bands has limited the ability for rural and remote communities to gain access to affordable spectrum, and we feel the public interest would be better served through co-operative spectrum management through either Industry Canada or a non-profit organization representative of community networks and regional areas where broadband access is uneconomic or not equivalent to facilities presently available in Urban areas.

2. FCFS

The Society is also not in favour of the first-come-first-serve approach, as contention based protocols and coordination are able to alleviate many of the expressed interference concerns.

3. Approach

The Society recommends that a non-exclusive approach be adopted similar to the ISM model, but for provisions to be put into place to address coordination and interference issues. We believe the following areas would need to be addressed:

1. Specification of contention based technologies and purpose of technology used in 3650-3700 to be used for public broadband wireless applications.
2. A compulsory registration system for operators using the spectrum.
3. Compulsory coordination and interference resolution procedures through the registration system for operators to work through.
4. Education for operators with differing skillsets than traditional radio engineers.
5. Sub-bands

3.1 Contention

We believe the specification of contention based protocols will function as a cornerstone to mitigating interference concerns. As well, defining use of 3650-3700 for public broadband services only will help alleviate the issues seen within the ISM bands as ISM is used by many incompatible technologies.

3.2 Compulsory registration

Rather than adopting a “licensing” model, the Society would prefer a mandatory registration system. Such a system would require operators to register their use of 3650-3700, specifying the channel bandwidths and purposes of their use through a database system along with the other common elements currently used in the ALS. The registration system would in turn notify other operators of new entrants to the spectrum. The system should also provide communication facilities to allow operators to communicate concerns and work co-operatively to establish local bandwidth sharing agreements or to take other steps as deemed appropriate.

Such a system would look more like the Internet registration system used for IP allocation and Domain registration. Unfortunately the Society was unable to publish an indepth over-view of the functional elements of the System prior to the submission deadline of the DGTP-006-06 consultation but would be pleased to provide such a resource to Industry Canada and other respondents in future deliberations.

3.3 Coordination and interference procedures

The Society is of the view that any coordination or interference mitigations should be documented and arbitrated through the registration system so as to insure all users of the band are aware of concerns and outcomes within their geographical proximity.

3.4 Education to insure all operators are aware of their responsibilities to other users of the spectrum

In reviewing the consultation for DGTP-006-06, an area of concern was expressed by many of our consultees. The concerns and processes outlined in the consultation document itself, but also the existing SRSP and RSS documents are, at first glance, technical in nature. The Society is concerned that many operators in the ISM bands, but also future bands, do not have the engineering background to understand the nature of these considerations and as the majority of new broadband technologies in the market are designed for “Plug and Play” deployment, network administrators and individuals with non-radio backgrounds will continue to adopt these solutions. In many cases these new operators are not aware of interference concerns or common practises and may contribute to resource exhaustion through improper deployment of the technologies.

The Society recommends Industry Canada be mindful of this concern in developing guidelines for new spectrum releases, and refer operators to “Best Common Practises” in the way of network planning, use of focussed antennas and limiting output emissions to serve their intended market base. As well, continued partnership with vendors and other spectrum stake holders will help in building the educational deficit we perceive between deployers with non-engineering backgrounds and the backgrounds of traditional radio operators.

3.5 Sub-Plans

The Society believes it would be useful to devise a band-plan for Point to Multipoint distribution and Point to Point backhaul systems. The following band plan would be acceptable for our purposes:

1. 3650-3675 MHz - Point to Multipoint distribution with a maximum carrier width of 25 MHz.
2. 3675-3700 MHz - Point to Point applications with carrier widths of 5, 10, 15 and 25 MHz.

4. Rural vs. Urban

As to the issue of rural vs urban licensing, while the Society recognizes the importance of favouring independent, local operators in rural areas, the issue of access to licensed spectrum by independent operators in Urban Areas is exacerbated by the predominance of incumbent and predatory operators within Urban markets. Therefore, the Society suggests that a holistic approach be taken in providing preference to independent operators over entities who already have spectrum, and that geographical service areas be avoided unless those blocks are made accessible to independent operators through a neutral coordination organization such as a Community Co-Operative or other non-profit organization.

Comments are invited on the proposed definition as well as the Department's proposal to require the use of contention-based protocols for non-exclusively licensed spectrum in the band 3650-3700 MHz. Alternative proposals are welcome and should include details as to how these proposals address the potential for interference between non-exclusive licensees. The Department invites comments on the requirement to enter station and contact information into a publicly accessible database.

The Society is in favour of the requirement to use contention-based protocols for non-exclusively licensed spectrum.

The Society is in agreement with the present FCC definition of "contention based protocol", however in addition, we favour the use of a coordination system and guidelines for operators to resolve interference concerns.

The Department requests comments on the proposal for open eligibility.

The Society is opposed to the use of 3650-3700 MHz by incumbent service providers, or other entities who have spectrum licensing already in place.

The Society believes the 3650-3700 MHz should be made primarily available to community and independent network operators. Existing incumbent and competitive service providers already have access to the resources necessary to use non-ISM spectrum, and as such, we prefer that more spectrum be made available to smaller organizations who otherwise lack the means to access licensed spectrum.

The Department invites comments on whether it should impose in-band or out-of band spectrum aggregation limits on licensees in the event a competitive process is adopted, and the rationale for such limits.

Should a competitive process be adopted, the Society is in favour of limiting the acquisition of spectrum in the 3650-3700 MHz band by entities already in possession of licensing.

Thank you for your consideration in this matter.

Sincerely,

Matthew Asham, on behalf of the
British Columbia Wireless Network Society