



**Submission to Industry Canada by**

**SSI MICRO LTD.**

**In Response to**

**Canada Gazette Notice SMSE-018-10,**

***"Consultation on a Policy and Technical Framework  
For the 700 MHz Band and  
Aspects related to Commercial Mobile Spectrum"***

**February 28, 2011**

*(Public abridged version – responses to questions 4-2, 4-3, 4-4 and 4-5  
have been submitted in confidence and under separate cover)*

*“Meeting the needs of consumers and businesses in rural and remote areas presents unique challenges. Advanced service deployment tends to trail that of urban areas, as the business case for deploying networks in these sparsely populated regions is far more difficult. A range of technologies can be employed and there is often greater reliance on terrestrial wireless and satellite solutions for rural and remote communities. [...]”*

*“Given the huge importance of access to high speed networks, governments will likely have an ongoing role to ensure that Canadians in rural areas are not left behind. In doing so, Canada must ensure that citizens and communities have more than just basic broadband, but the speeds and capacity needed for economic growth.”*

*“Improving Canada’s Digital Advantage” - the Federal Government’s 2010 Consultation Paper on a Digital Economy Strategy for Canada*

## **A. Introduction and Context**

1. SSi Micro Ltd. (“SSi”) is pleased to submit these comments to Canada’s Minister of Industry (“Industry Canada” or the “Department”) in response to Canada Gazette Notice No. SMSE-018-10, the Department’s “Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum” (the “700 MHz Consultation”).
2. We have an interest in the 700 MHz Consultation for the very reasons highlighted by the Department in the Consultation paper:

*“Sufficient spectrum to enable wireless network expansion and new broadband technologies will be needed to allow the continued growth of wireless broadband, leading to lower prices and improved quality of service for end-users, as well as enhanced opportunities for innovation and investment.”*

3. SSi is the licensee of MCS spectrum in the 2500 MHz band in Nunavut and the Northwest Territories. We have extensively deployed satellite and terrestrial wireless facilities, notably across Canada’s North. We are, and have every intention to continue, expanding our operations. However, successful ongoing expansion may well require our gaining access to additional spectrum resources. As such, we appreciate the opportunity to provide these comments.

4. Our comments, for the most part, are prepared as direct responses to the questions posed by the Department in the 700 MHz Consultation. Accordingly, we have not prepared an Executive Summary. And as permitted by the Department, SSi has responded to questions 4-2, 4-3, 4-4 and 4-5 in confidence, and submitted the responses to those questions under separate cover.
5. Finally, as a 2500 MHz MCS licensee, we do take note from the Consultation paper “...that the Department will consult on licensing measures for the band 2500-2690 MHz in a separate consultation.” SSi will participate as permitted and appropriate in any such future consultation.

## **B. Background on SSi**

6. SSi is a leader in the field of remote and rural connectivity. Headquartered in Yellowknife, Northwest Territories, we specialize in the design, deployment and operation of communications networks to support the needs of communities that have limited or no access to terrestrial transport and interconnection to the outside world. Our networks deliver broadband Internet via advanced satellite delivery platforms, and we provide local distribution of services within communities using terrestrial wireless technologies.
7. SSi’s accomplishments include the deployment of satellite/wireless networks throughout Nunavut and the Northwest Territories, as well as various communications projects in developing nations around the globe. We have a reputation for delivering high-quality solutions to complex issues, and are renowned for being on the leading edge of the latest developments in satellite, wireless and Internet technologies. SSi is very proud to have deployed and to operate broadband wireless networks using 2500 MHz MCS spectrum in 56 of the communities within Nunavut and the Northwest Territories. These two territories account for one-third of Canada’s landmass, yet have a total population of fewer than 75,000 people.
8. SSi Micro Ltd. was founded in Fort Providence, Northwest Territories in 1990, providing the North with a fully equipped sales, training and technical service centre. At that time, SSi Micro became the 13th division of a much larger group of northern-based companies, including the Snowshoe Inn, operated by the Philipp family since 1965. For over two decades, “Snowshoe” also operated the ferry that crosses the Mackenzie River, connecting the Territorial capital, Yellowknife, with the rest of the world. SSi became the first Novell and Microsoft Certified training centre in the North.

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9. Five years after SSI's doors opened, the company played an integral role in bringing Internet services to the North. As a result, SSI became one of the first Internet service providers in the Northwest Territories. At that time SSI expanded operations and opened a retail store in Yellowknife, offering Internet, sales and technical services to all sectors of the economy.
  10. As the retail market matured in the North, SSI shifted emphasis to specialized areas of Information Technology, including municipal and wide area networking incorporating advanced satellite and terrestrial communications. Our work in the field of satellite technologies led to a national Canadian Information Productivity Award in the category of Next Generation Technology.
  11. Continually seeking new and innovative technologies, and ways to provide the best services possible, in 2004 SSI launched residential high-speed wireless service in Yellowknife, delivered across licensed 2500 MHz MCS spectrum. The offering was state of the art, using non-line of sight broadband wireless technology, and the first of its kind implemented in Canada. It also, provided Northerners an attractive, facilities-based competitive choice to the incumbent operator's offerings.
  12. SSI reached out beyond Canada and began providing communications services to non-profit organizations such as Care International, building infrastructure in Africa and Indonesia where affordable voice and data solutions were desperately needed. SSI has also built infrastructure in Kiribati, a country located in the central South Pacific, and we continue building our award winning networks at home in Canada.
  13. The "QINIQ" ([www.qiniq.com](http://www.qiniq.com)) network was built to provide affordable broadband wireless Internet services to the entirety of the greater Nunavut community; that is to say, to all 25 of the hamlets, villages and towns in Nunavut. The QINIQ network has improved the lives of Nunavummiut by providing access to cost-effective broadband connectivity. This was previously impossible, as no broadband infrastructure existed that the average person could readily make use of, due to cost and availability factors.
  14. We also underscore (and discuss further below in these comments) that investments by the Federal Government have served to support certain costs of satellite transport and infrastructure for QINIQ, helping to ensure the availability and affordability of broadband services to all residents and local communities in Nunavut.
  15. A more recently completed project was the deployment and launch of a similar broadband wireless network in the Northwest Territories, again with Federal Government collaboration. The "AirWare" network ([www.airware.ca](http://www.airware.ca)) operates in 30 communities in the Territory, bringing terrestrial broadband service to consumers, regardless of population density or remote location. As in Nunavut, SSI has constructed facilities to allow satellite connectivity in and out of each community.

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16. With the goal of giving all northern residents equal access to quality communications services, SSi has deployed infrastructure in even the smallest of hamlets, some of which have as few as 55 residents. For broadband service to be sustainable and successful in smaller and remote communities, there is a need to develop local expertise to support the network.
  17. Recognising this challenge, SSi places particular emphasis on training and assisting local individuals and organizations to be involved in our delivery of service, and we engage Community Service Providers in every community as local agents.
  18. Relevant to this 700 MHz Consultation, SSi has deployed a wireless broadband “last mile” in all communities we serve which has notable advantages over any embedded wireline infrastructure. SSi’s customers can travel and automatically receive service in any Nunavut community and across the Northwest Territories. The value that this “portability” feature of our current service brings to consumers will only be enhanced if we are able to upgrade service to full mobility.
  19. In sum, SSi is a wireless network operator providing service in some of the harshest climates and remote locations on earth. We understand first-hand and in detail the challenges faced in providing effective and affordable communications services to remote and outlying areas, and in providing a competitive alternative to incumbent operators in small and remote markets.
  20. There are many facets to remote and rural connectivity, and we are constantly evaluating and developing new technologies and integrating these to ensure our offerings remain attractive and competitive.

### **C. Specific Comments on the 700 MHz Consultation**

21. Set out below are SSi’s responses to each of the questions raised by the Department, in the order and with the numbering used in the 700 MHz Consultation paper. For those questions where we have no comment or are not in a position to answer, we have so indicated.
22. As mentioned above and permitted by the Department, SSi has responded to questions 4-2, 4-3, 4-4 and 4-5 in confidence, and submitted the responses to those questions under separate cover.

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#### **4. Commercial Mobile Services**

##### ***Question 4-1 - What is the general need for additional commercial mobile spectrum at this time and what do you anticipate the future needs to be?***

23. *Response:* SSi certainly expects that there will continue to be the need for and use of additional commercial spectrum due to ever-increasing demands in the use of wireless devices (between persons and between machines), for data capacity and speeds, and for quality and diversity of new technologies (both mobile and fixed), in the delivery of communications services.

24. In looking at both general and anticipated future needs for spectrum, it is important to note the attributes of the spectrum under consideration; that is, not all spectrum should be considered equal. In this regard, as the Department itself notes in the Consultation Paper:

*“The 700 MHz spectrum is attractive due to lower costs associated with system deployments, as service provisioned over lower frequencies can reach subscribers at a greater distance from the base station. In addition, by taking advantage of wide radio channels, broadband radio technologies (such as LTE) can accommodate further increases in distance between subscribers and base stations and/or increased data communication speeds. As a result, deployment of broadband radio systems in the 700 MHz band will have an important role in increasing the penetration of broadband wireless services in regions with low population density.”*

25. Two simple yet valuable examples of the benefits for northern and outlying communities that 700 MHz spectrum can offer in comparison to other higher frequencies:

- a. lower frequency spectrum can have an extended range of signal - which will assist search and rescue missions in remote regions; and
- b. terrain in much of the Territories consists of trees and hills (which do not help with reflecting radio signals), but very few tall buildings (which do help with reflecting signals) – this terrain can make coverage much more costly (for capex and opex) if higher frequencies are used because that would require more cell sites and backhaul.

26. Thus, from the perspective of a satellite and wireless operator focused on serving northern, remote and outlying communities, we believe the Department needs to be particularly judicious in the allocation of and licensing processes for spectrum, such as the 700 MHz band, that is limited in availability but holds special propagation attributes that can be favourable to the economic and efficient delivery of service to outlying and remote areas.

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***The Department is seeking specific spectrum usage information from current commercial mobile licensees and entities interested to acquire commercial mobile spectrum [...]***

***Your comments to the above questions will be considered proprietary and will remain confidential. Responses to these questions must be submitted separately (e.g., in an appendix) and clearly marked as “Confidential.”***

*27. Note: SSi is responding to questions 4-2, 4-3, 4-4 and 4-5 in confidence, and we have submitted our responses to those questions to the Department under separate cover as part of this Consultation.*

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## **5. 700 MHz Band Plan Issues and Considerations**

- **700 MHz Band Plan Architecture for Commercial Mobile Systems**
- ***Option 1: Harmonize with the U.S. band plan;***
- ***Option 2a: U.S. band plan with slight adjustments – with 8 and 10 MHz channel blocks in the Lower 700 MHz;***
- ***Option 2b: U.S. band plan with slight adjustments – with a mix of 3 and 5 MHz channel blocks in the Lower 700 MHz;***
- ***Option 3: Harmonize with the APT band plan.***

***Question 5-1 - Based on the criteria listed above, which of the four band plan options should be adopted in Canada? Why is this option preferred over the other options? If Option 3 (APT band plan) is selected, what should the block sizes be? In providing your responses, include supporting arguments, including potential benefits to wireless subscribers.***

*28. Response: The total amount of spectrum available for licensing in the 700 MHz band is limited, and we can expect that, in most if not all areas of the country, demand may outstrip supply. As such, SSi believes that the band plan architecture ultimately adopted must maximize the number of spectrum blocks available for auction, while minimizing any negative impact from a band plan that is not harmonized either for North America or on a global basis.*

*29. The most important advantages of band plan harmonization include economies of scale for equipment and international roaming, facilitating equipment compatibility with other mobile frequencies licensed in Canada, and accessing a wider range of services and applications to be developed on a global basis.*

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30. In light of the above, SSI would favour the proposed Option 2b provided that this option does not negatively impact North American and global roaming and network interoperability, and would not cause inordinate delays or increased costs in the availability of network equipment and terminal devices. We also qualify our support for Option 2b (or any other option) with our comments below; in particular, SSI is not convinced that 700 MHz spectrum should be dedicated to public safety agencies for the deployment of closed “private” networks.

***Question 5-2 - The band plans presented in the options above include guard bands. Should the Department auction the guard bands, or should these frequencies be held in reserve for future use such that they are technically compatible with services in the adjacent bands?***

31. *Response:* In SSI’s view, auctioning the guard bands would give licensees flexibility to maximize use of the spectrum.

***Also comment on any related aspects not addressed above or other possible options, including combinations of options.***

32. *Response:* SSI has no further comments on the possible options, at this point.

***Question 5-3 - Do public safety agencies need spectrum for broadband applications? If so:***

***(a) How much and for which type of applications?***

***(b) What are the anticipated deployment plans and the possible constraints, if any, in implementing these plans?***

***(c) Is there suitable alternate spectrum to the 700 MHz to meet these broadband requirements?***

33. *Response:* We refer to our response to question 5-6, below.

***Question 5-4 - Comments are sought on the need for public safety broadband radio systems to be interoperable:***

***(a) Between various Canadian public safety agencies;***

***(b) Between Canadian and U.S. public safety agencies.***

34. *Response:* Without further information on the needs and requirements to support public safety services, SSI is not in a position to respond properly or fully to question 5-4.

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**Question 5-5 - What are the challenges faced today by public safety agencies to have cross-border radio interoperability in other frequency bands?**

35. *Response:* Without further information on the needs and requirements to support public safety services, SSi is not in a position to respond properly or fully to question 5-5.

**Question 5-6 - Notwithstanding your responses to questions 5-3 to 5-5, the Department seeks comments on whether public safety broadband needs can be met by using commercial systems with priority access rights for public safety, at commercial rates.**

**(a) Your views and comments are invited on priority access rights, including pre-emption, and on the feasibility of such a system.**

**(b) What public safety technical and operational requirements cannot be met by commercial systems, from either a public safety or commercial operator point of view?**

**(c) What specific rules, if any, should be mandated by the Department to make such a system viable?**

36. *Response:* Rather than having spectrum and “closed” or “private” networks dedicated exclusively for the use of public safety broadband systems, SSi’s first preference would be for all good faith efforts be made to assess and develop solutions whereby commercial network operators can address and deliver public safety broadband needs and requirements.

37. That is, commercial network operators should be in a position to design, deploy and operate state of the art broadband wireless networks that are able to support the needs of consumers and businesses as well as the needs of governments and public safety agencies. The specific rules to make such a system viable can be developed as part of these efforts.

38. This is a particularly acute issue for Canada’s North. Public safety agencies have limited or no infrastructure on the ground in the North and MUST use existing commercial services. SSi does not believe it would be an effective or wise use of public funding to build a closed and dedicated private network for public safety services in the North.

39. The best solution, we believe, is for public safety agencies to have access to the commercial networks where they exist now or, as they will be developed in the future. It is the local people who must be part of any response, and who must be enabled to be effective local responders for public safety. We do believe the only way to do that is to have public safety functions co-exist with commercial services.

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40. By way of simple assessment to support our position: public safety services that are not regularly used by the local responders will not work effectively when there is an incident. Regular use of commercial systems by public safety responders will ensure network readiness in times of need. These shared commercial systems can be made capable of priority management and non-essential load shedding to preserve the access by public safety usage during an incident.

***Question 5-7 - Comments are sought on the need for regional (local, provincial, etc.) dedicated broadband networks to provide access to all public safety agencies, and the institutional feasibility of implementing such a system.***

41. *Response:* Without further information and analysis on the needs and requirements to support public safety services, SSi is not in a position to respond fully to question 5-7. We do re-emphasize, however, our comments on the “Territorial need”, for public safety broadband services in the North, and our view that the best way to meet that need is to have public safety functions co-exist with commercial services on a common commercial network.

***Question 5-8 - Is there a need for a dedicated national interoperable broadband network to provide access to all public safety agencies? The Department seeks comments on the institutional feasibility of implementing such a system.***

42. *Response:* Without further information on the needs and requirements to support public safety services, SSi is not in a position to respond properly to question 5-8.

43. That said, we do repeat our comments in response to question 5-6, above on the need for a network (which should be run by and part of a commercial network, in our view) to support public safety agencies in the North. A “national” interoperable network is not being fully discussed if a large part of the nation – Canada’s North – is excluded from the conversation.

***Question 5-9 - If band plan Option 1, 2a, or 2b in Section 5.1 is chosen, which one of the three options described above should be adopted and why is this option preferred over the other options?***

- ***Provide supporting rationale.***

44. *Response:* See again our comments in response to question 5-6.

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***Question 5-10 - If commercial operators are mandated to support public safety services, what tier size should be applied in order to ensure adequate public safety coverage?***

45. *Response:* From our current understanding of matters, we do not believe the size of a licence area or “tier size” need affect public safety issues. We have responded elsewhere in these comments to the tier size we believe appropriate for the 700 MHz band. If additional information and analysis on the needs and requirements to support public safety services is provided, SSi may be in a position to respond further to question 5-10.

***Question 5-11 - If the APT band plan (See Option 3 in Section 5.1) is adopted:***

***(a) Given that the APT band plan requires a 55 MHz duplexing separation, can Canadian public safety services operate their current narrowband systems in this band plan configuration? If not, what are possible alternatives to address public safety needs?***

46. *Response:* Rather than having spectrum and “closed” or “private” networks dedicated exclusively for the use of public safety broadband systems, we refer again to SSi’s comments in response to question 5-6, above, and our preference that all good faith efforts should be made to assess and develop solutions whereby commercial network operators can address and deliver public safety broadband needs and requirements.

***(b) Should spectrum be designated for dedicated public safety broadband systems, and how much?***

47. *Response:* We refer to our response to question 5-6, above.

***You are also invited to comment on any related aspects that are not addressed above, including whether the decision should be delayed until the U.S. situation is known.***

48. *Response:* While SSi certainly recognises the potential and significant benefits to North American and global alignment in spectrum planning (some of these benefits are noted in the Consultation paper) and multi-jurisdictional coordination in public safety preparedness. As such, there could be some advantages to await further clarity from the U.S., provided that this does not lead to undue delays.

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49. However, at the end of the day, Canada needs to develop its own solutions to address public safety requirements and concerns. Given this, and in light of our other comments above, SSI believes there need be NO delay for the Department, working with public safety agencies and interested commercial operators, to initiate a process and forum to assess and develop solutions whereby commercial network operators can address and deliver public safety broadband needs and requirements. We do believe this is a pressing issue in particular for Canada's North.

***Question 5-12 - The Department seeks comments on whether the auction of 700 MHz commercial spectrum should be based on uniform tier sizes across all spectrum blocks, or a mixture of tier sizes.***

50. *Response:* SSI has would prefer that a larger number of smaller spectrum blocks – meaning uniformly small tier sizes – tier 4 if practical and no larger than tier 3 - be licensed in the 700 MHz band, with spectrum caps in place as part of the auction process to allow a chance for a greater number of licensees to obtain spectrum.

***Question 5-13 - Based on your answer above, what tier size(s) should be adopted?***

51. *Response:* Given our preference for a larger number of smaller blocks to be licensed,

***Effective immediately, no new broadcasting certificates will be issued for LPTV stations in TV channels 52-59 (698-746 MHz).***

***The Department proposes that the displacement of the incumbent LPTV stations be subject to a notification period of one year for LPTV stations located in urban areas or in specific geographic areas, such as along highway corridors; and a period of two years for LPTV stations in all other areas. A displacement notification can be issued only after technical determination is made concluding that continued operation of the incumbent LPTV station would impede the deployment of new licensed systems in the 700 MHz band.***

***Question 5-14. The Department seeks comments on the transition policy proposed above.***

52. *Response:* SSI would support the Department's proposal.

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***Question 5-15 - The Department seeks comments regarding its proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until March 31, 2012.***

53. *Response:* SSi would support the Department's proposal.

## **6. Changes to Canadian Table of Frequency Allocations**

***Question 6-1 - The Department seeks comments on its proposed changes to the Canadian Table of Frequency Allocations for the band 698-806 MHz.***

54. *Response:* SSi supports the proposed changes.

## **7. Promoting Competition**

### **7.1 Possible Need to Promote Competition**

***Question 7-1 - The Department seeks comments on the current state of competition and its anticipated evolution, including the impact on consumers in the Canadian wireless services market:***

***(a) in general;***

***(b) in terms of its contributions and interaction to the broader Canadian telecommunications service market;***

***(c) in comparison with the wireless markets of other jurisdictions.***

55. *Response:* SSi operates in some of the world's most remote areas, and in no case would any of our markets be considered "large". Despite that, we are often deploying facilities and providing retail services in competition with other network operators. Not only does this provide choice and price competition for consumers, it ensures that the most efficient and attractive technologies are made available – which of course serves the sustainability of the service providers utilizing those technologies.

56. So, as a general and overarching comment, SSi believes that the Department should never conclude that any market is unable to support new innovation and competitors, and should never establish or perpetuate practices and policies that allow incumbent operators and technologies to entrench themselves, whether through inertia or regulatory privilege. We also refer the Department to our comments in response to questions 8-1 to 8-3, below.

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***Question 7-2 - Provide views, and any supporting evidence, on the impacts of government measures adopted in the AWS auctions, including the impacts on consumers and on the state of competition. In particular, what has been the impact, if any, of such measures on industry concentration, barriers to entry or expansion of services, and the availability of new or improved service offerings and pricing plans?***

57. *Response:* SSi has no additional views to provide at this time, beyond the views we have made and the measures we have advocated elsewhere in our submission as part of this 700 MHz Consultation.

***Question 7-3 - In light of the current conditions in the Canadian wireless service market(s), is there a need for specific measures in the 700 MHz and/or 2500 MHz auction to increase or sustain competition?***

58. *Response:* In these comments, SSi has proposed and advocated certain specific measures with respect to the 700 MHz band, in particular the use of spectrum caps and smaller tier sizes as part of the 700 MHz auction.

59. As a 2500 MHz MCS licensee, we previously provided the Department with comments concerning the 2500 MHz band, notably in the 2010 consultation concerning realignment of the 2500 MHz band plan, Industry Canada's Notice No. DGSO-001-10, "*Decisions on the Transition to Broadband Radio Service (BRS) in the Band 2500-2690 MHz and Consultation on Changes Related to the Band Plan*". We will provide further comments as appropriate in response to any future consultation relating to the 2500 MHz band.

***Question 7-4 - The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of these proposed changes impact your responses to the questions above?***

60. *Response:* SSi's comments made as part of this 700 MHz Consultation would not be affected if any changes were to be made to the foreign investment restrictions in the telecoms sector.

***Question 7-5 - If the Department determines that there is a need for measures to promote competition, which of the above mechanisms would be most appropriate and why should this mechanism be considered over the other?***

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***Comments should also indicate if further restrictions should apply so that policy objectives are met, for example, over a given time period?***

61. *Response:* Again, SSi is advocating the use of spectrum caps in the 700 MHz auction; that is, limiting the amount of spectrum any participant (or associated group of participants) can acquire in a 700 MHz auction. We believe that this measure is the simplest to implement as part of any spectrum auction or allocation process, and will deliver the greatest short and long-term benefits for competition and diversity.

***At the time of licensing new spectrum, to ensure that the spectrum resources are fairly distributed among interested parties, the Department can impose a limit on the amount of spectrum an applicant can acquire.***

- Industry Canada, August 27, 2004, Gazette Notice No. DGTP-010-04 -  
Decision to Rescind the Mobile Spectrum Cap Policy

***In light of your response above, and recognizing that pending decisions on the specific band plan, spectrum for public safety system, tier sizes and open access requirements could influence your response:***

**Question 7-6**

***(a) If the Department were to implement spectrum aggregation limits (caps):  
(i) Should the cap apply to the 700 MHz band only or be broader?***

62. *Response:* SSi recommends the cap be applied only to the 700 MHz band; that is, the spectrum cap should be specifically applied to the auction process for 700 MHz.

***(ii) What should the size of the cap be?***

63. *Response:* This will depend on the 700 MHz band plan ultimately implemented by the Department, but SSi would advocate that no individual participant or associated group of participants be permitted to acquire more than 20% or 25% of the 700 MHz spectrum available at auction.

***(iii) Should bidders and their affiliates or associates share the cap?***

64. *Response:* Yes.

***(iv) How long should the cap remain in effect?***

65. *Response:* SSi would propose a cap remain in place for a period of three years from the date the first 700 MHz licence is issued to a successful licensee. There should be no spectrum cap in any secondary allocation process for 700 MHz spectrum that remains available after completion of the initial 700 MHz auction.

***(b) If the Department were to implement a set-aside in the 700 MHz auction:***

***(i) Who should be entitled to bid in the set-aside block(s) and should the entitled bidders be restricted to bidding on the set-aside only?***

***(ii) How much spectrum should be set-aside and which block(s) should be set-aside?***

***(iii) If the set-aside were to include multiple blocks of spectrum, should they be contiguous?***

***(iv) What restrictions should be put in place to ensure that policy objectives are met (for example, should trading of the set-aside spectrum be restricted for a given time period)?***

66. *Response:* SSi believes that if spectrum caps are put in place for the 700 MHz auction, as we advocate above, there may be no need for a spectrum set-aside.

***Question 7-7 - Are there other mechanisms that should be considered and, if so, how should these be applied?***

67. *Response:* Beyond those discussed in this submission, SSi has no other mechanisms to propose, at this time.

***Question 7-8 - The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of the proposed changes affect your responses to the questions above?***

68. *Response:* SSi's comments made as part of this 700 MHz Consultation would not be affected if any changes were to be made to the foreign investment restrictions in the telecoms sector.

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**Note: The possible implementation of a set-aside regarding the 2500 MHz spectrum to be auctioned will be dealt with in a separate consultation.**

69. *Response:* SSi takes note of this point, and we will comment as appropriate in any future consultation concerning the 2500 MHz spectrum band.

### **8. Promoting Service Deployment in Rural Areas**

***Question 8-1 - In the above context, the Department seeks comments on challenges and specific problems affecting the deployment of broadband mobile services to low-density rural and remote areas.***

70. *Response:* SSi appreciates the sensitivity the Department is showing to a simple reality: it is in rural and remote areas where broadband mobile services are needed the most, yet it is often these very same areas where broadband is least likely to be available. As the Consultation paper points out, "...access to the advanced broadband services [is] needed to prosper in today's digital economy."

71. We are proud of what SSi has accomplished to bring broadband service to many of Canada's most isolated communities. We have achieved this through the use of advanced satellite and wireless technologies and systems, working in all cases with local partners and often, as we describe herein, with the collaboration of the Government of Canada. Our experience has also given us a good amount of insight into the challenges of deploying sustainable broadband services to these areas.

72. For the purpose of this submission, we asked Darrell Ohokannoak, Chair of the Nunavut Broadband Development Corporation ("NBDC") to comment on SSi's launch and delivery of broadband wireless services in Nunavut (under the QINIQ brand name), as well as the potential for future broadband services in the territory, including through the possible use of 700 MHz spectrum. His comments are as follows:

*"In Nunavut the smallest, most remote communities have the fewest basic services. Many of these are taken for granted in the south, such as banks, colleges, libraries, stores and retail outlets, and other resources of all kinds. So broadband services are actually the most critical to the smallest communities. Investments in communications networks provide a very effective substitute for unaffordable "bricks and mortar" services and investment. In some cases, delivering services online actually represents an improvement over traditional means of delivery.*

*"When we (NBDC) encouraged the initial broadband investments by SSi Micro, with the support of the Canadian government, we insisted that every resident living in*

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*any Nunavut community – no matter how small or remote – be able to access broadband services at the same quality and the same price. SSi has met these expectations for every broadband subscriber in all of our communities. As the ‘last mile’ in all communities is wireless, any broadband subscriber can travel and automatically receive service in any Nunavut community. In addition, SSi has engaged local Community Service Providers as local agents in all communities, providing a familiar local “face”, and ensuring that a good percentage of basic broadband revenue stays in each community.*

*“For me, it is critical that we continue to invest in broadband in every location in the greater Nunavut community, and harness the best new technologies and innovations. Any new policy or process to license spectrum should encourage this. If we are able to use new spectrum to extend services further beyond the populated communities — further onto the land — that will be critical to the economic development of Nunavut and to addressing issues we face related to public safety and sovereignty.”*

73. Nunavut has a growing population of 33,000 persons, living in 9,600 housing units, across a territory that spans almost two million square kilometres. SSi has successfully deployed in all 25 of these communities. Today, almost every business, government office and other organization, along with over one-half of residences in Nunavut, are subscriber's to SSi's broadband service.
74. From what we are seeing and experiencing, there is a rapidly increasing demand for broadband capacity and new technologies to deliver broadband service. As a critical point, the median age in Nunavut is 24 years compared to the Canadian median age of 39 years. The residents of Nunavut have come to rely on broadband, and a young and growing population will only serve to augment the future demand for broadband, and facilitate further integration into the digital economy.
75. SSi recognises that our broadband infrastructure will require ongoing investments in order to meet continued and growing demand in the North. SSi is prepared to make those investments, but we do believe that government also has a key role to play (and as we have highlighted elsewhere in these comments, has played well via a number of programs in the past). Tied to this, any future spectrum policy, including the process to allocate 700 MHz spectrum, should aim to facilitate investment in and deployment of state-of-the-art technologies across the most effective frequencies for the delivery of mobile broadband services to Canada's smallest and most remote communities.
76. For ease of the Department's review, we can summarise into various categories the challenges faced by SSi in providing broadband service to northern and remote communities. These challenges stem principally from the significant distances between communities, a small population base, and a cold, harsh climate:

a. *High costs:*

- The provision of broadband in the north involves high costs for shipping, construction, maintenance and voice and data backhaul (be that by satellite or terrestrial transport link).
- We refer to our response to question 8-2, below for more detail, but we again emphasize the vital importance of broadband service for remote and outlying areas, and applaud Industry Canada for recognising that governments have an ongoing role to develop programs and incentives to ensure that citizens and communities have more than just basic broadband, but the speeds and capacity needed for economic growth. This collaboration must continue.

b. *Delays and difficulties in accessing sites:*

- Remote locations and a cold, harsh climate allow only a very brief window each year for ship transport, and can lead to delays in any unscheduled shipping and travel to sites for the delivery of equipment, construction and maintenance of infrastructure.
- These challenges can also affect service levels; for example, it can take days to reach a location to fix a problem, even if the fix itself is easy. To demonstrate the reality of this challenge, as these comments are being prepared (late February, 2011), a NorthwTel microwave link has gone down in northern NWT, and delays in repairing the link are being caused by inclement weather.
- SSi carries out significant R&D into developing solutions for remote diagnostics and repairs, aimed at overcoming some of the challenges caused by distance and climate.

c. *Quality and availability of existing infrastructure / need for redundancy:*

- The quality and availability of the existing infrastructure of an incumbent operator, both for essential and non-essential facilities, can affect the cost and quality of network builds and service delivery by alternative providers, such as SSi
- At the same time, as outages in the transport facilities demonstrate, SSi believes the availability of redundant infrastructure, both within a community and for transport in and out of communities, is essential to properly address the needs of consumers, business, government and public safety.

d. *Regulatory privilege and inertia in favour of incumbents*

- Tied to the need for redundant infrastructure, a concept that has to be rejected is any notion that there is no room or need for more than one player in many (if not all) rural and remote markets.
- This is clearly a self-serving argument, meant to perpetuate a pre-existing and privileged monopoly status.
- Beyond this, to accept the idea of “natural monopoly” would condemn consumers of communications services in such areas to lack of choice and force them to accept out-dated and often costly and inefficient network technologies.

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- We believe that any policy meant to encourage deployment in rural and remote areas must have as a goal to empower the consumer, or end-user, not the incumbent monopoly operator, to determine the best technology choice and service provider.
- e. *Small population and large distances between communities:*
- A small local population can affect our ability to hire and train local staff,
  - However, for broadband service to be sustainable and successful in smaller and remote communities, there is a need to develop local expertise to support the network.
  - Recognising this challenge, SSi places particular emphasis on training and assisting local individuals and organizations to be involved in our delivery of service.
- f. *Reach beyond the populated areas:*
- Finally, the infrastructure that is in the North today (essentially plain old telephone service, broadband wireless and, in some markets, mobile service) is only deployed within a limited distance outside the populated areas. Thus, much of the “land” is not effectively covered.
  - Greater coverage onto the land will lead to increased social and economic benefits for the local residents and for Canada, and of course augment public safety.
  - As stated elsewhere in these comments, and as recognised in the Consultation paper, a key advantage to the 700 MHz band is the greater geographic reach and coverage this frequency allows in comparison to higher frequencies, both from an economic and technological perspective.

***Question 8-2 - Is there a need for further regulatory measures or changes to existing regulatory rules (e.g. RP-19) to facilitate service deployments in rural and remote areas that remain unserved and/or underserved?***

77. *Response:* Beyond the regulatory measures for the 700 MHz auction process that SSi has discussed in these comments (ie, spectrum caps and small tier sizes), there are a number of other measures that can be continued or introduced to facilitate broadband service deployments in rural and remote areas that remain unserved and/or underserved.

78. *RP-019:* the Consultation paper makes reference to Radio Policy RP-019; we would recommend that this policy remain in place.

79. *Roaming:* One particular measure the Department can adopt as part of the 700 MHz process is mandated roaming. All mobile spectrum licensees (this includes cellular, PCS, AWS, BRS, 700 MHz, etc.) must allow roaming across their networks to all other mobile spectrum licensees on a non-discriminatory basis.

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80. If a carrier with a mobile spectrum licence or network in only part of Canada is unable to obtain roaming in other parts of the country - for commercial or anti-competitive reasons rather than technical ones - that inability can deny significant benefits of the deployed mobile technology for consumers, businesses, governments and public safety.
81. *Deployment Incentives*: a number of incentive plans can encourage spectrum licensees to deploy and/or improve mobile broadband service in remote, rural, unserved and underserved areas. These can include:
- tax incentives;
  - portable subsidies (allowing consumers to receive subsidized broadband from the service provider of their choice);
  - rebates from the amounts paid at auction for spectrum for licensees who actually deploy in unserved and underserved areas;
  - reduction of licence fees (for spectrum that was licensed outside of an auction) for licensees who actually deploy in unserved and underserved areas.
82. *Government Infrastructure and Other Programs*: We have noted elsewhere in this submission various programs that the Government of Canada has introduced - with success - to extend broadband service in Canada, and to assist in maintaining affordability of the service for end-users.
83. Examples of these include the National Satellite Initiative (NSI), from the Canada Strategic Infrastructure Fund, to help defray the costs of satellite delivered connections, and the Broadband Canada: Connecting Rural Canadians program to extend broadband coverage that mostly targets Canadians living in unserved and underserved areas. SSi, QINIQ and AirWare have been and continue to be beneficiaries of these programs. Given growing need and demand for, and reliance on broadband services in Canada's northern and outlying communities, we believe the value of these programs is even greater today than ever, and such programs should be expanded and continued.
84. We can only cite again with agreement the Federal Government's 2010 Consultation Paper on a Digital Economy Strategy for Canada:
- "Given the huge importance of access to high speed networks, governments will likely have an ongoing role to ensure that Canadians in rural areas are not left behind. In doing so, Canada must ensure that citizens and communities have more than just basic broadband, but the speeds and capacity needed for economic growth."*

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***Question 8-3 - Should the Department decide that measures are necessary, comments are sought on specific measures that could be adopted within the 700 MHz spectrum auction process to ensure further deployment of advanced mobile services in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).***

85. The principal measures that could be adopted as part of the 700 MHz auction include, as we have advocated in these comments, spectrum caps and smaller tier sizes (tier 3 or tier 4) to facilitate the acquisition of 700 MHz spectrum by those companies, such as SSi, who may be operational or based in the very remote and rural areas where it would be beneficial to have further deployment of advanced mobile services.
86. We do believe that establishing a process to encourage new spectrum being licensed to multiple players, whether this be in urban or remote areas, is a necessary step to encourage deployment and a competitive mobile wireless marketplace. Multiple competing players in all areas of the country should lead to greater investment, more coverage, and ensure better and more diverse services provided to Canadians.
87. Other measures to encourage and support further deployment of advanced mobile services in rural and remote areas are described in response to question 8-2, above. We do highlight again one particular measure that the Department can adopt as part of the initial 700 MHz licensing process (along with spectrum caps and small tier sizes). That is to mandate all mobile spectrum licensees (cellular, PCS, AWS, BRS, 700 MHz, etc.) to provide roaming on a non-discriminatory basis to all other mobile spectrum licensees.

## **9. Open Access**

***Question 9-1 The Department seeks comments on whether there is a need for government intervention to promote open access, by increasing access by users to handsets and/or applications.***

88. *Response:* SSi is in favour of promoting open access. However, great care must be taken to ensure that any measures taken to carry out such promotion not become a hindrance on innovation and development.

***Question 9-2 - If government intervention is needed, which of the following options should be implemented?***

***Option 1: Mandated open access requirements across all future commercial mobile bands***

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***Option 2: Mandated open access requirements for the entire commercial mobile spectrum in the 700 MHz band.***

***Option 3: Mandated open access requirements for the “C Block” (746-757/776-787 MHz) as in the United States.***

89. Without seeing further details from the Department on exactly what requirements, measures and obligations are proposed for and involved in “mandated open access” as described above, and how these would be implemented, SSI is not in position to advocate or reject any of the options above.

### **10. Auction Timing**

***Question 10-1 - The Department is considering three options to proceed with the 700 MHz and 2500 MHz bands auction processes:***

***Option 1: to conduct an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later;***

***Option 2: to conduct an auction for licences in the 2500 MHz band first, followed by an auction for licences in the 700 MHz band approximately one year later;***

***Option 3: to conduct one combined auction for licences in both the 700 MHz and 2500 MHz bands, which would be six months later than the first auction in the case of separate auctions.***

***Industry Canada is seeking views on the merits or disadvantages of proceeding with each of the various options stated above. The Department seeks to understand the magnitude of interdependencies between the two bands from a business/operational perspective.***

***Specifically, comments are sought as to the extent spectrum in these bands is interchangeable or complementary from both a technological and a strategic perspective. In addition, views on the business and financial capabilities of participating in a joint auction for both bands are sought.***

***Comments should include the rationale for selecting one option rather than another.***

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90. *Response:* SSi's comments are being provided, at least in part, from the perspective of a 2500 MHz MCS licensee.
91. We have noted elsewhere in these and other comments to the Department that SSi is making very extensive use of 2500 MHz spectrum licensed to us across Nunavut and the Northwest Territories. We have deployed and are using Motorola's "Expedience" technology and equipment in 56 communities in Nunavut and the Northwest Territories, where we deliver high-speed Internet wireless and other services to residential, business and government users.
92. Our usage at 2500 MHz includes spectrum that the Department has identified for SSi to remit to the Department for future licensing as part of the realignment of the band plan from MCS to BRS. To ensure we do not disrupt or discontinue service to our customers, we will require continued usage of that spectrum on a transitional basis.
93. It is in large part because of our extensive current usage of 2500 MHz spectrum, including spectrum that we will continue to use on a transitional basis but may be required to remit to Industry Canada in the future, SSi would prefer Option 1 proposed by the Department.
94. Beyond the reasons stemming from our own usage of 2500 MHz spectrum, Option 1 is also the best approach because, we believe, there is currently greater operator demand to license new 700 MHz spectrum than there is for 2500 MHz spectrum. Tied to this, manufacturers have readily available and are continuing to develop mobile network equipment and handsets to operate at the 700 MHz band.

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