Submission to Industry Canada by

SSI MICRO LTD.

In Response to

Canada Gazette Notice SMSE-005-11,

"Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz"

April 19, 2011

> ***"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 Part I, Notice No. SMSE-005-11, Gazette Notice SMSE-006-11 - "Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz" and Gazette Notice SMSE-006-11 - "Extension to the Comment Period for Part B of the Document Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz" (collectively, the "2500 MHz Consultation").

2. SSi is the licensee of BRS (formerly known as 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. As such, we have an interest in the 2500 MHz Consultation we appreciate the opportunity to provide these comments.

3. Our comments, for the most part, are prepared as direct responses to the questions posed by the Department in the 2500 MHz Consultation. Accordingly, we have not prepared an Executive Summary.

4. On February 28, 2011 SSi submitted comments and on April 6, 2011 SSi submitted reply comments 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"). A number of the submissions made as part of the 700 MHz Consultation are relevant here, and we will be making reference to them in this submission.

B. Background on SSi

5. For ease of reference and to place the importance we place on this 2500 MHz Consultation in context, we reiterate here our background comments from the 700 MHz Consultation.

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 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.

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) 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 – with technology operating in the 2500 MHz band. 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) operates across the Territory, bringing terrestrial broadband service to consumers, regardless of

population density or remote location – again with technology operating in the 2500 MHz band. As in Nunavut, SSi has constructed facilities to allow satellite connectivity in and out of each community.

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 Consultation, SSi has deployed a wireless broadband "last mile" using technology operating in the 2500 MHz band in all communities we serve. This 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 2500 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 2500 MHz Consultation paper.

Part B – Consultation on a Policy and Technical Framework on New BRS Licences

In preparation for the future licensing of the 2500 MHz spectrum, the Department seeks comments on the following:

1-1 Should the block sizes be uniform in size?
(a) If a uniform size is preferred, what size should be considered?
(b) If a mix of block sizes is preferred, what combinations and arrangements should be considered?

22. *Response:* SSi would prefer that a larger number of smaller spectrum blocks, uniform in size, be auctioned in the 2500 MHz band. Consistent with our position concerning the 700 MHz band, this should allow a greater number of licensees to bid on spectrum, if the interest is there. We would accept that uniform block sizes of 5+5 MHz for paired blocks and 10 MHz for unpaired blocks be established.

1-2 In the specific geographic regions discussed above and shown in Appendix A, which block size option(s) should be adopted and why is this option(s) preferred over the other options? Should the combinations and arrangements of block sizes be the same or different in different areas? Provide supporting rationale.
Provide comments separately for paired and unpaired spectrum blocks.

23. *Response:* See our response to question 1-1, above.

2-1 The Department seeks comments on whether the licensing of 2500 MHz spectrum should be based on uniform tier sizes across all spectrum blocks, or on a mixture of tier sizes.
2-2 Based on your answer above, if a uniform tier size is preferred, what tier size should be adopted? If a mixture of tiers is preferred, please indicate the proposed tier(s) for each spectrum block.

Provide supporting arguments for your responses to the above questions.

24. *Response:* SSi would prefer smaller and uniform tier sizes - tier 4 by preference - for the 2500 MHz band. Consistent with our position concerning block sizes, this should allow a greater number of licensees to bid on and possibly acquire spectrum, if the interest is there.

3-1 If the Department determines that there is a need for measures to promote competition in the wireless services market, which of the above mechanisms would be most appropriate in the 2500 MHz band and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply.

25. *Response:* In these comments, SSi has proposed and advocated certain specific measures with respect to the use of small and uniform block sizes, and smaller tier sizes.

26. *Response:* SSi has no additional views to provide at this time, beyond those measures we have advocated in this submission and previously in our comments filed as part of the 700 MHz Consultation as they are relevant to and consistent with our comments on the 2500 MHz band.

In light of your response above, and recognizing that pending decisions on block sizes and tier sizes could influence your response:

3-2 (a) If the Department were to implement spectrum aggregation limits (caps), should a cap apply to the 2500 MHz band? If a cap is necessary:

(i) What should be the size of the cap and should this be specific to either the paired and/or unpaired spectrum bands?

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

(iii) How long should the cap remain in effect?

27. *Response:* In our comments as part of the 700 MHz Consultation, SSi recommended that a spectrum 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 spectrum. We do not believe a spectrum cap should apply to any allocation process for the 2500 MHz band.

28. SSi maintains this position given:

i) the beneficial attributes of the 700 MHz band vis-à-vis the 2500 MHz band (as we describe further below);

ii) ii) the simple reality that, unlike the 700 MHz band, there are broadband wireless operators, including SSi, who have previously been issued MCS and/or MDS licences and who are presently making, and would like to have the opportunity to continue to make, extensive and practical use of spectrum in the 2500 MHz band. That opportunity should not be foreclosed by the imposition of spectrum caps or other similar restrictive measures; and

iii) Different bidders will have different requirements; some for large blocks of spectrum, others for smaller blocks, and the auction rules should not restrict that.

29. Concerning the beneficial attributes of the 700 MHz, SSi reiterates here our comments made as part of the 700 MHz Consultation:

- 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."*

- 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.*

- 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.

30. In terms of current usage of spectrum at 2500 MHz, in certain of our markets, SSi is already employing either all or close to the entirety of the MCS spectrum originally allocated to SSi, that is, before the Department realigned the spectrum band plan to BRS.

31. There is an utmost priority to avoid disrupting or damaging service to existing MCS customers in the transition to the new BRS band plan for the 2500 MHz spectrum.

Accordingly, we appreciate the Department's determinations that allow SSi to continue to use, on a transitional basis, the MCS spectrum originally licensed to SSi that the Department has required to be returned for future licensing as part of the BRS conversion.

32. Given our past and current success in making extensive use of the 2500 MHz spectrum in our licensed serving territories, we do not believe it wise, appropriate or equitable that that there should be restrictions, by way of spectrum cap or otherwise, on any attempt we may wish to make to secure in an auction process the 2500 MHz spectrum that was previously licensed to us, and that we continue to utilize in our operations, albeit by way of interim or transitional licence.

33. Finally, SSi notes and agrees with the following comments of the Department from the 2500 MHz Consultation document, which provides further rationale why spectrum caps should not be imposed as part of the 2500 MHz allocation process:

> *The Department recognizes that different bidders will have different spectrum requirements. For example, some may wish to acquire large contiguous blocks of spectrum, whereas others may prefer small blocks of spectrum.*

(b) If the Department were to implement a set-aside in the 2500 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 these blocks 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 be restricted for a given time period)?

34. *Response:* For the reasons set out in our response to question 3-2 (a) above concerning spectrum caps, SSI does not believe there should be a spectrum set-aside implemented for the 2500 MHz band.

3-3 Are there other mechanisms that should be considered in the 2500 MHz band to promote competition? If so, how should such mechanisms be applied in this band?

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

3-4 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 the proposed changes affect your responses to the questions above?

36. *Response:* SSi's comments made as part of this 2500 MHz Consultation would not be affected if any changes were to be made to the foreign investment restrictions in the telecoms sector.

3-5 The Department is seeking specific spectrum usage information from current commercial mobile licensees and entities interested in acquiring commercial mobile spectrum:

Do you plan to use the 2500 MHz spectrum acquired in the auction with, or on behalf of, another entity, which may participate in the auction? If yes, with which entity? Your comments to this question will be treated as confidential provided that they are submitted separately (e.g. in an appendix) and clearly marked as "Confidential."

37. *Response:* SSi is today a licensee of 2500 MHz spectrum in Nunavut and the Northwest Territories, and we have noted elsewhere in these and other comments to the Department that SSi is making very extensive use of 2500 MHz MCS (now BRS) spectrum licensed to us across Nunavut and the Northwest Territories.

38. SSi has deployed and is 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, and we fully plan to continue making extensive use of the 2500 MHz spectrum licensed to us in order to deliver quality broadband services to those in our licensed serving territories.

39. We moreover note Industry Canada's recognition in the 2500 MHz Consultation document of the special challenges that, in light of our already extensive deployment and use of 2500 MHz spectrum, the conversion from MCS to BRS presents to SSi:

    The Department recognizes the challenges associated with the physical migration of existing systems and their impact on users, particularly in northern areas of Canada, i.e. Yukon, the Northwest Territories and Nunavut, where a longer migration time may be necessary. In order to minimize such impact, the Department agrees that existing systems will not be required to be displaced unless and until it becomes necessary.

40. Finally, we also refer the Department to the confidential comments SSi provided in response to question 4-4 as part of the 700 MHz Consultation.

4-1 Comments are sought on specific measures that could be adopted within the 2500 MHz spectrum auction process to ensure further deployment of BRS in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).

41. *Response*: We again repeat with satisfaction the fact that SSi has very extensively deployed broadband wireless infrastructure operating in the 2500 MHz band across our licensed serving territories in Nunavut and the Northwest Territories – some of the most challenging environments on earth.

42. SSi moreover 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.

43. Any future spectrum policy, including the process to allocate 2500 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 and broadband wireless services to Canada's smallest and most remote communities.

44. Beyond the measures that SSi has discussed in these comments for 2500 MHz (ie, uniform and small block sizes and small tier sizes), there are other measures, which were also raised by us in our comments as part of the 700 MHz Consultation, that can be continued or introduced to facilitate broadband service deployments in rural and remote areas that remain unserved and/or underserved.

45. *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.

46. *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.

47. 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.

48. 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."*

49. Given the growing need for, demand for, and reliance on broadband services in Canada's northern and outlying communities, we believe the value of government incentive and infrastructure programs is even greater today than ever, and such programs should be expanded and continued.

50. SSi appreciates the opportunity to provide these comments to the Department.

***** end of document *****