Mipps Inc.

5343 Dundas Street West, Suite 108
Toronto, Ontario, M9B 6K5, Canada

Tel: (416) 238-8801
Fax: (416) 238-8844

VIA EMIAL
To: wireless@ic.gc.ca

Monday, October 27, 2006

Director, Spectrum and Radio Policy,
Telecommunications Policy Branch
Industry Canada
300 Slater Street
Ottawa, Ontario
K1A 0C8

Dear Sir or Madam:

Subject: Mipps Inc. Comments in Response to Proposed Spectrum Utilization Policy, Technical and Licensing Requirements for Wireless Broadband Services (WBS) in the Band 3650-3700 MHz and Further Consultation, Canada Gazette, Part I, notice reference number (DGTP-006-06) dated June 23, 2006.

1. Mipps Inc is pleased to submit the attached comments in response to the above Proposed Spectrum Utilization Policy.

2- Mipps Inc. holds 40 Tier-4 Licences in the 3500 MHz band.

2. The comments are submitted in Microsoft Office Word 2003 Document Format. The Operating system used by the originating computer is Microsoft Windows XP Professional Version 2002 Service Pack 2.

3. If there are any questions concerning these comments, please do not hesitate to contact the undersigned.

Yours truly,

Y.S. (Joe) Boutros, P.Eng
President, MIPPS Inc.
5343 Dundas Street West, Suite 108
Toronto, Ontario, M9B 6K5
(416) 238-8801

Attachment

1. Introduction

Worldwide, the new radio technologies and public policies have allowed transmission on specific frequencies by individuals without a licence. These are licence-exempt or "unlicenced" Bands. A natural conclusion, then, is that unlicenced spectrum and the low cost wireless technologies that operate on these bands could be of particular value to bring an affordable alternative to broadband "last mile" connectivity.

Also, unlicenced wireless has the potential to greatly reduce licence-related barriers and thus significantly improve the prospects for wireless network deployment.

However, we find that as the burden of licensing for transmission on these bands is relaxed, there is often an increase in restrictions on power, range, or type of service as well as equipment certification requirements. Furthermore, the lack of clarity and enforcement discourages innovation and small entrepreneurs.

In particular, licence exempt or "unlicenced" spectrum in a non-exclusive, contention based or shared fashion– similar to the rules proposed in the USA for the referenced band- may especially not be suitable to us in Canada. The USA did not licence the 3500 MHz band and their initial intention for the 3650-3700 MHz band is to be deployed in the rural areas. Mipps Inc. believes that the operation of unlicenced devices in the 3650-3700 MHz band has the potential for causing harmful interference to receivers operating in the conventional Canadian Licenced spectrum in the 3500 MHz band. The authorization and widespread deployment of unlicenced devices would impact the operation of the licensees of the 3500 MHz band. Moreover, Industry Canada should take into account the potential for interference from unlicenced devices in Canada from the proposed non-exclusive spectrum deployed in the United States in the 3650-3700 MHz band.

2. Mipps Inc. Position

1-Mipps Inc. believes that the harmonization of unlicenced devices with the United States (US) is in the best interest of Canadians and requests that the Department to undertake a consultation which would address the efficient utilization of spectrum in the 3650-3700 MHz band.

2- Similarly, we encourage the Department to identify additional spectrum for licence-exempt use not adjacent to existing licenced bands.

3- Mipps Inc Shares the Satellite Industry Association ("SIA") concerns that if Industry Canada would permit licence-exempt spectrum in the 3650-3700 MHz band whether for a non-exclusive basis or with registration, the following concerns will need to be addressed: The "SIA" posed the following concerns:

“Industry Canada may want to consider regulating potential harmful interference through limitations on the power emitted by each transmitter. One of the main advantages of such an approach is that transmitted power is easily measurable, permitting straightforward determination of whether a given facility conforms to established standards. By contrast, the necessity to consider and restrict *aggregate* interference – especially from anonymous users -- makes validating compliance vastly more complicated. How will licenced operators be able to determine and establish that the new devices have exceeded authorized signal levels? If a licenced system experiences disruptive interference, how will that situation be remedied? In practice, how will *each* equipment manufacturer and individual user be held responsible for elimination of interference, especially where there are thousands or millions of active, unlicenced and thus untraceable systems in operation, each contributing a component of the excessive interference?”

Additionally, refer to the attached ‘Addendum A’ IEEE C802.16h-06/0730
Project IEEE 802.16 Broadband Wireless Access Working Group http://ieee802.org/16>
Title: Specification of operational environments for non-exclusively assigned and licenced bands. Date Submitted 2006-09-17. Also, we share some of the opinions submitted by the INDUSTRIAL TELECOMMUNICATIONS ASSOCIATION, INC.(ITA) to the FCC dated July 28, 2004 as per ‘Addendum B”.

4- A licenced spectrum would allow Industry Canada to strike a balance of various restrictions around a number of issues, namely: increased access, the rights and privileges of incumbents and existing providers, quality of service guarantees and consumer protections, management of interference, rent-seeking activities, and perhaps issues of national security.

5- A level of regulatory certainty regarding company’s ability to bid and acquire licenced spectrum similar to the 3500 MHz band, at least for some foreseeable period, is an essential prerequisite to investment and lead time. Protecting the adjacent proposed 3650-3700 MHz band to be licenced will assure stability and any doubts as to the ability to provide consistency could reverse that trend.

6- Mipps Inc. believes that Industry Canada should seek to avoid rules that restrict spectrum use to particular services or applications, so long as the user operates within the technical parameters applicable to the particular band in question. Due to the technological innovations in wireless systems and rapid deployment of wireless broadband service, Industry Canada must ensure that this flexible use model is applied equally to all frequency bands, licenced or unlicenced.

7- Licences to be reserved in the proposed 3650-3700 MHz band to the existing licensees of the 3500 MHz band for future submissions and would be issued based on geography and density within each Tier-4 licenced area.

8- Hence, all statutory compliance, foreign ownership rules, technical and performance requirements of the 3500 MHz band policy would apply to the proposed 3650-3700 MHz band.

9- Geographic coverage would be based on a maximum radius of 25 Sq.Km on exclusive basis. Maximum of 4 Licensees/Operators would be permitted in one Tier-4. Density per 25 Sq.Km grids is allocated equally among the 4 Licensees in the Tier-4.

10- Applications for each 25 Sq.Km grid would be based on FCFS basis and conditional on network being deployed within one year from granting the licence.

11-Each wireless licensee would be authorized to operate on all 50 megahertz of the 3650 MHz band with a maximum of 100 MHz spectrum aggregation limits between the 3500 MHz licence and the proposed 3650 MHz licence. As a result, wireless licensee in the 3650 MHz band would be able to use as much of this spectrum as needed for their operations as long as they comply with all applicable licensing, service, and operating rules. All wireless licensees in the 3650 MHz band within the same Tier 4 would have equal rights to the use of this spectrum in their licenced 25 Sq.Km grid, but all these licensees will have a mutual obligation to cooperate and avoid harmful interference to each another.

12- No partitioning or disaggregation nor lease or transfer of any grid would be permitted.

14- Licences per grid would be issued and renewed in annual basis with a minimal fixed fee.

15- On a national basis, there would be no limit to the number of the exclusive grid based wireless licences that may be granted for this spectrum for each Licensee.

‘Addendum A’

2006-09-17 IEEE C802.16h-06/0730

Project **IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**

Title **Specification of operational environments for non-exclusively assigned and licenced bands**

Date Submitted

2006-09-17

Source(s) Paul Piggin
NextWave Broadband Inc.
12670 High Bluff Drive
San Diego CA 92130 USA
Ken Stanwood
Cygnus Communications Inc.
12670 High Bluff Drive
San Diego CA 92130 USA
Voice: 1 858 480 3100
Fax: 1 858 480 3105
ppiggin @ nextwave.com
Voice: 1 858 480 3100
Fax: 1 858 480 3105
kstanwood @ cygnuscom.com

Re: Working Group Review of Working Document IEEE 802.16h-06/015r1

Abstract This document contains additions to the P802.16h Working Document describing the operational environment for various bands of interest where 802.16 systems could operate in a non-exclusively licenced or assigned fashion, competing with other systems and technologies.

Purpose The purpose of this document is to establish a minimum set of common rules necessary for regulatory approval of 802.16 operation in certain bands while also documenting the peculiarities of the bands.

B.1.1.3 3650 - 3700 MHz in the US

The FCC rules for this band are contained in 47 CFR, Part 90 (“Private Land Mobile Radio Services”). This provides 50 MHz of spectrum from 3.65 GHz to 3.70 GHz. It is licenced under a non-exclusive, nationwide basis for the entire 50 MHz. There are no channelization requirements. The power levels specified for this band are contained in 47 CFR 90.1321, which specifies 25W peak EIRP/25 MHz for fixed stations and 1W peak EIRP/25 MHz for mobile and nomadic stations. The emission masks are specified in 47 CFR 90.1323.

The regulations do not specify channelization requirements. However, for effective DCS, 802.16 systems operating in this band should use either 5 or 10 MHz non-overlapping channels (*note: normative statement*).

Two different types of specific spectrum users exist in this band – Fixed Satellite Service (FSS) earth stations and three government operated radiolocation sites. These are protected through exclusion zones mandated in 47 CFR 90.1331, which provides for 150 km exclusion zones around the FSS stations and 80 km exclusion zones around the government radiolocation sites. Additional restrictions are placed on operation near the USA/Mexico border and the USA/Canada border. To ensure adherence to the exclusion zones, and to monitor the number of stations deployed under the non-exclusive licences, fixed stations (both BS and SS) must have their location registered. Mobile stations (both BS and SS) are permitted to transmit only if they can hear and properly decode the downlink from a fixed base station. Operation within an exclusion zone is possible through coordination with and permission from the FSS operator. Outside of the exclusion zones, there are no SSUs, so there is no direct requirement for DFS in this band.

2006-09-17 IEEE C802.16h-06/0734

It is likely that an IEEE 802.16 system in this band will face the need to coexist with other 802.16 systems. Non- 802.16 systems will likely be present as well. In particularly, the IEEE P802.11y project is developing an amendment to specifically address the changes necessary for IEEE 802.11 systems to operate in this band. The presence of other systems suggests the use of coexistence mechanisms, such as DCS to select the best channel for operation.

In 47 CFR 90.1319, the FCC requires the use of a contention-based protocol in the 3.65-3.7 GHz band. In order to satisfy this requirement and to coexist with 802.11 systems and other 802.16 systems, 802.16 systems operating in this band should use the uncoordinated coexistence protocol defined in section 6.4.2.4, including the DCS, extended adaptive quiet periods, and listen-before-talk features (*note: normative statement*).

Industry Canada has indicated that the rules for this band in Canada will be similar to those established by the FCC.

‘Addendum B’

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Unlicenced Operation in the Band 3650- ET Docket No. 04-151
3700 MHz

Additional Spectrum for Unlicenced ET Docket No. 02-380
Devices Below 900 MHz and in the
3 GHz Band

Amendment to the Commission’s Rules) ET Docket No. 98-237
With Regard to the 3650-3700 MHz)
Government Transfer Band
COMMENTS OF THE
INDUSTRIAL TELECOMMUNICATIONS ASSOCIATION, INC.

Abridged Version

“ITA wishes to make the following points:

- There are major classes of wireless users who, justifiably, cannot rely on devices or services utilizing unlicenced spectrum for the protection of their communications investments and for the safety of life and property.
- Licenced spectrum use in the 3650 MHz band will allow mission critical entities to provide broadband services similar or identical to those envisioned for unlicenced use, but with a more certain operating environment, yielding credibility for further investments in fixed broadband communications systems.
- A licenced spectrum allocation in the 3650 MHz band would allow higher power limitations, effectively serving larger geographic areas than unlicenced devices or services.
- The 3.6 GHz band’s relatively limited bandwidth and pre-existing incumbency issues make it attractive for licenced broadband operations.
- As unlicenced technologies develop in an unregulated environment, many users have observed the quick saturation of devices operating on unlicenced bands. The rapid deployment of unlicenced technologies, however, creates an unstable operating environment in some geographies in which certain wireless users are reluctant to utilize the spectrum for mission critical operations for fear of future system degradation due to unpredictable increases in the noise floor.
- The opportunities that have unfolded as a result of the development of unlicenced technologies, nevertheless, demonstrate the need for *licenced* spectrum for similar broadband services. With licenced broadband spectrum, these entities could

realize new communications efficiencies that save lives and property without the threat of interference and the uncertainty characteristics associated with an unlicenced operating environment

- In the Commission's *Memorandum Opinion and Order and Third Report and Order* concerning the transfer of the 4.9 GHz band from Federal Government use, the Commission noted that "public safety associations persuasively argued that a public safety designation would enable responders to carry out critical and urgent missions more effectively, and would [3] Mission critical radio systems are primarily used for safety-of-life and the prevention of property damage – whether in a warehouse, dockside, or in a law enforcement vehicle – and demand reliable, secure, real-time access to spectrum. These systems support every American business and industry sector (such as transportation, pipelines and construction operations, as well as public safety users and many others) by providing safety to employees and the public at-large.
- By advocating licenced services, ITA urges the Commission to support prudent management of the spectrum through the most efficient and intensive use of that spectrum as can be effective for its intended recipients and objectives.
- As an ancillary characteristic, a licenced broadband allocation could create new internal operating efficiencies for wireless users, thus stimulating the American economy.
- Provide a safer environment." ITA submits that the 3650 MHz band could provide the same safe environment for broadband communications of mission-critical, wireless entities. In essence, licenced spectrum in the 3650 MHz band could provide dependable spectrum for the provision of Wi-Fi and WiMAX-like services that complement traditional networks employed for the protection of life and property. For example, a system manufactured by Motorola, Canopy, permits private land mobile licences to link remote video monitoring capabilities with legacy radio equipment, and connect to the Internet for virtually instantaneous access to information in critical situations, such as criminal record information in a law enforcement vehicle or utility pipe location information for construction crews. Despite the obvious benefits of the Canopy system for many entities, a justified hesitation exists within the industry because of its reliance on unlicenced spectrum. Were this system and others in development to operate in a more certain, reliable spectral and geographic environment, entities may better justify the expense associated with such a communications investment and employ more effective and efficient communications services for internal uses.
- One of the Commission's stated objectives in this proceeding is to provide another tool that will extend broadband services into rural areas more effectively. As unlicenced systems are stretched to cover more distance, situations frequently arise where a user's receiver becomes located in close proximity to a neighboring transmitter. In these situations, the weaker user-touser isolation tools, such as spread spectrum coding gain, antenna directivity, or cross polarization, may not mitigate the reception of undesired signals. A licenced approach, on the other hand, supports a system's operational integrity and efficient use of the spectrum from a [6] *See* The 4.9 GHz Band Transferred from Federal Government Use, *Memorandum Opinion and Order and Third Report and Order*, WT Docket NO. 00-32 (rel. May 2, 2003) at ¶ 7.
- Technical perspective, as prudent spectrum management of the frequency environment could isolate neighboring systems. Moreover, ITA urges the

Commission to remain aware that there is a substantial amount of unlicenced spectrum available today. As the Commission noted in its *Notice of Inquiry* on the acceptance of unlicenced devices in the 3650 MHz band, it has already made 664.5 MHz of unlicenced spectrum available to the public in the 900 MHz (902-928 MHz), 2.4 GHz (2400- 2483.5 MHz) and 5 GHz bands (5.15-5.35 GHz, and 5.47-5.825 GHz bands).[7] Given the broad bandwidths available in the 2.4 GHz and 5 GHz bands, the relatively limited bandwidth in the 3.6 GHz band would not likely replace existing Part 15 operations, nor would it be an attractive band for new unlicenced devices. ITA recommends, therefore, that the Commission make this spectrum available on a licenced basis for broadband operations in a more structured, certain spectral environment. In such a case, unlicenced technology suppliers will not lose business opportunities, but instead provide products tailored to a new class of wireless users requiring a secure operating environment. As explained above, ITA supports the retention of a licenced allocation in the 3.6 GHz band for next generation broadband services."