ISED SMSE-014-20-20 COMMENTS

PSBN Innovation Alliance Comments on the Ministry of Innovation, Science & Economic Consultation on the Technical and Policy Framework for License-Exempt Use in the 6GHz Band (SMSE-014-20)

January 19, 2021

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Preface & Introduction to this Document

The PSBN Innovation Alliance is pleased to submit this document under its umbrella legal Copyright auspices, to the Ministry of Innovation, Science, and Economic Development (ISED) committee studying Policy frameworks for the 6GHz RF band, as a peer review by industry professionals, Public Safety communications practitioners, and municipal and industry leaders. This document is a Copyrighted submission for ISED review and may be released for public review pursuant to the terms of the ISED consultation.

We sincerely appreciate this opportunity to offer reply comments on the SMSE 014-20 submissions, and to specifically offer perspectives on the needs of First Responders and Critical Infrastructure in this ISED consultation. We also applaud the excellent work of ISED in fostering innovation and high quality, cost effective 5G licensed and unlicensed services for the coming decades in Canada, and in considering creative new policy solutions to bridge the rural and remote digital divide in our country.

We respectfully remain available to respond to any ISED questions, and would like to request to participate in any follow-up actions or oral proceedings related to this solicitation. We sincerely appreciate the opportunity to comment on the future path of broadband telecommunications for First Responders in Canada, in this time of generational change and review of telecom policy.

Yours sincerely,
The PSBN Innovation Alliance

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REVIEW COMMENTS & RECOMMENDATIONS RELATED TO ISED SMSE-014-20: TECHNICAL & POLICY FRAMEWORK FOR LICENSE-EXEMPT USE IN THE 6GHZ BAND

A STUDY BY THE PSBN INNOVATION ALLIANCE

A. OVERVIEW:

1. This document is a set of recommendations prepared by the PSBN Innovation Alliance – an association of Emergency Responder agencies, municipalities and related organizations across jurisdictions covering over 4 million Canadians – providing a response comments to the ISED consultation SMSE 014-20 regarding the establishment of new licensing terms for unlicensed services in the 5.925-7.125GHz spectrum bands in Canada.

2. The PSBN Innovation Alliance mission is to advance technologies and to foster the innovative development of wireless communications systems that meet the needs of Emergency Responders and the communities they serve.

3. One of our areas of research relates to the building of a reliable Public Safety Broadband Network (PSBN) for Canada – in an approach founded on the policy principles of Community Safety & Wellbeing (see Reference [A07]) on positive societal partnerships that foster holistic Community growth and benefits for all Canadians).

4. Our aim is to ensure Canadian telecom infrastructure meets the 21st century data interoperability, Cybersecurity and rugged reliability needs for 911 emergency lifesaving operations, and to grow 911 and broadband access alongside critical infrastructure in all the rural, remote, suburban and urban communities we serve.

5. Our Alliance work spans both terrestrial and wireless communications, and across the breadth of narrowband and broadband communications technology - and spectrum - which underpins Canada's digital society. In our response we also highlight the assured communications needs for First Responders in rural and remote communities across Canada, tech trends and new policy models that can help improve access and integration of municipal networks into a more reliable, innovative and affordable telecommunications service for all Canada's diverse communities.

6. In summary, we hope to provide collaborative perspectives and technical considerations to the CRTC, in support of building telecommunications networks that meet the evolving critical data needs of Emergency Responders in Canada's rural and remote communities.

7. This document is aligned with our published six-volume set of whitepapers, studies and reports focused on various key policy and economic aspects for consideration in the design of a flexible and robust Canadian PSBN – available digitally at www.psbninnovationalliance.ca:

    a. Volume I – The Evolving Communications Needs of Canadian First Responders;

    b. Volume II – Qualitative Analysis of Canadian PSBN Models;

    c. Volume III – Economic Analysis of Canadian PSBN Models

    d. Volume IV – Business Model Scenario for a Hybrid Model PSBN

    e. Volume V – TNCO Interim Report Review Comments & Recommendations for a Canadian PSBN;

    f. Volume VI – Community Safety Broadband Model (CSB) – CRTC 2019-406 Submission

8. Please refer to these related whitepapers for further background pertaining to holistic PSBN policy for Canada – along with added policy linkages to NG-9-1-1 and rural broadband, a needs analysis, future trends discussion and added information on the recommendations in this response on 4G / 5G spectrum allocations in the 700MHz band and beyond (see References [A01] through [A06]).

A1. PSBN Innovation Alliance – Association Membership:

9. The PSBN Innovation Alliance is a not-for-profit Association of Public Safety agencies and Critical Responders in Ontario, partner R&D institutions, universities and commercial advisors, and currently includes a rapidly growing membership covering a population of over 4 million Canadians. Our comments within this document are provided as conceptual and research oriented, and are not intended to imply the endorsement of specific members listed below. The following member agencies are part of our rapidly growing Association:

PSBN INNOVATION ALLIANCE

FULL MEMBERS:

- **7 Regional Agencies that cover more than 4 Million Canadians in common PSBN advocacy**
- **Combines users from Tri-Services, Transit, Electricity, Municipal Services, Airports & more**
- **The Nucleus & Foundation of a Province-wide PSBN serving all of Ontario**
- **Innovative new business model (MVNO / MNO combination) + interoperability focus**
- **Strong advocate for policies promoting Rural Broadband growth + Rural Business Innovation**
- **Nexus for University R&D focused on Emergency Responder & Critical Infrastructure Apps → Safer Cities**

ADVISOR / OBSERVER MEMBERS:

ASSOCIATION ADVISOR MEMBERS:

Represents the Chiefs of 56 Policing Agencies in the Province of Ontario

Represents all 11,200 career Firefighters in the Province of Ontario

Represents 18,000 sworn and civilian police personnel from 47 police associations across Ontario.

For further information, please visit our website at: www.psbninnovationalliance.ca

B. REPLY COMMENTS ON ISED CONSULTATION SMSE-014-20:

10. We would like to again thank the Ministry of Industry, Science and Economic Development (ISED) for the opportunity to comment and share concepts that may be of use in setting up spectrum band assignments, from the perspective of Public Safety 911 communications needs.

11. As a short summary of our positions on this consultation for the 5.925-7.125GHz band we note:

12. The historical growth and ubiquitous nature of the IEEE 802.11 “WiFi” standard today is a testament to the value society has seen in rapid and free access to mid-band spectrum (2.4GHz, 5GHz), and with mid-range propagation characteristics.

13. Society has seen value in WiFi connectivity in large part due to low barriers to entry, and the low cost of devices that utilize this standard and RF spectrum. WiFi routers and access are seen in most homes across Canada, in offices, factories, vehicles, on cell phone devices as portable “hot spots”, in urban municipal WiFi services, cafés, on aircraft during commercial flights, as value-add services from incumbent and new-entrant Mobile Network Operators (MNOs) – and much more.

14. In Public Safety, today’s unlicensed IEEE 802.11 connectivity is used in field operational cases for “hot-spot” access provided around emergency vehicles (e.g. vehicular hot-spot “bubbles”) attending emergency scenes, where backhaul to the Internet and home servers is achieved via an additional layer of either satellite connectivity (e.g. in rural / northern regions SatCom links can provide backhaul to WiFi vehicular bubbles) or via MNO services using 4G cellular broadband in low-band frequencies.

15. Of course, as in many industries and business settings, Public Safety also uses WiFi unlicensed services in home offices and agency facilities, or while operating in their communities via municipal on-street services to access data via Virtual Private Networks when commercial cellular broadband services are not available. In many respects, WiFi is today a secondary tool of First Responders, but nonetheless a valuable tool given a need to provide multiple fall-backs in the event of outages on primary broadband networks.

16. In the future, new broadband heavy-use applications beyond current “hot spot” vehicular access, and which could make use of new 6GHz unlicensed services could include:

    a. Public Safety “Internet of Things” (PSIoT) connections for sensors on vehicles, or electronic healthcare devices helping to stabilize patients in EMS trucks;

    b. Remote Search and Rescue “hot spot” access for emergency responders transported to a remote plane crash or other emergency scene, and with Low Earth Orbit (LEO) access back to terrestrial networks;

    c. Potential use in interdiction of autonomous vehicles using 6GHz municipal small-cell networks as part of driving vehicle-to-infrastructure communications while in autonomous mode of operation;

    d. Backhaul of Body Worn Camera live streams and remote upload for Cloud storage, and the linked recent phenomenon and societal trend to video-based calling instead of voice-only calling, as evidenced by Zoom calls during the COVID-19 pandemic;

    e. Next-Gen-9-1-1 (NG-9-1-1) data connectivity as a part of new digital services for 911 calling as mandated by the CRTC, and a near-term factor for deployment by ~2024-2025, and with further features anticipated by 2030 which will increase the need for reliable broadband downlink and uplinks to 911 emergency responders, that require the data transmitted during these NG-9-1-1 contacts;

f. Augmented Reality (AR) tools for Police, Fire and EMS, with lifesaving applications that include – as but one example – Fire AR visors to help provide data to Firefighters to help rapidly localize victims in need of help in buildings, and help direct Firefighters toward people via geo-located cell-phone signals within a burning building;

g. Cloud access to Public Safety data sources and data services in an increasingly "Cloud-based" paradigm for data sharing among agencies, and inside agencies – including for example, patient records for EMS paramedics;

17. Given the propagation characteristics of the 6GHz band, we suggest this spectrum is appropriate for only relatively short-range wireless access, consisting of tens to hundreds of meters in range from a router or "base station" access point. Given RF access contention and self-interference from among users, capacity and range can in turn be impacted, such that in dense areas where the band may be used heavily in the future, the range limitations are likely to keep the band as more of a short-range to mid-range solution for access (i.e., tens of meters to hundreds of meters).

18. From a consumer affordability stance, Public Safety budgets are impacted by the chronic high cost of telecommunications in Canada vis-à-vis the rest of the world – just as any other Canadian business or consumer. This high cost of Canadian telecom services (a well-established fact and a long-term problem with Canadian telecom policy and the resultant limited MNO competition we see today – we refer the interested reader to our References section at the end of this document for published examples), impacts Public Safety by sapping financial resources that could be used instead to pay for more front-line staff, or more life-saving apparatus. As such, reducing Canada's chronic high cost of telecom – essentially a policy failure in aspects of telecom policy – removes valuable funds for First Responder organizations, in turn raising municipal tax costs for residents and is a market and policy inefficiency that should also be a key goal for consideration and remedy by ISED policy-makers, in granting lower-cost access to spectrum in the future.

19. In considering the access and control mechanisms for future 6GHz unlicensed spectrum, we suggest that if various Dynamic Spectrum Access (DSA) tools are employed to help gain better efficiency in spectral usage, that any such centralized geo-location control databases have an ability for First Responders to gain prioritization & pre-emption services (at fair cost). The reason for this potential need for mandating the ability for emergency 9-1-1 prioritization & pre-emption in 6GHz DSA systems is that in crisis events, disasters and high-congestion public gatherings (e.g., see the Raptors Parade congestion experienced in 2019 and the well publicized problems in accessing commercial MNO networks during that event), that Public Safety have the ability to communicate when lives are at risk, or when critical minutes and seconds are at play in brining injured people to hospitals, or for coordination of disaster response in areas of damaged telecom infrastructure.

20. This concept of prioritization and pre-emption aligns with our past proposals to the CRTC and ISED for a universal "digital right of way" for Emergency Responders on commercial carrier networks, PSBNs and commercial unlicensed DSA systems in new 5G systems. This "digital right of way" is analogous to the way First Responder vehicles use "sirens and lights" to gain prioritization on physical roadways – and we suggest the same rationale applies in the digital world for data and communications access.

21. In the same way that at present new prioritization and pre-emption services are starting to be offered in 4G, and future 5G networks, we suggest that as 6GHz unlicensed commercial networks are deployed and offered as commercial wide-area municipal or regional services, that any such centralized DSA systems governing these networks have a similar prioritization & pre-emption capability. In other recent submissions to CRTC consultations on wholesale telecom services, we have suggested that the CRTC should mandate wholesale rates for such QPP prioritization solutions, to ensure fair cost assigned to Public Safety agency usage, and the public good afforded by the lifesaving work of emergency responders.

22. Therefore, we strongly suggest that ISED include stipulations in any future 6GHz spectrum licensing framework that mandate DSA systems have features and account for the need to potentially offer local, provincial and national Public Safety agencies with an option for a higher grade of service or pre-emption / prioritization capability for emergency responders.

23. Regarding the question of band plan and technical requirements for the 6GHz band, we suggest there is an advantage in harmonizing the band plan with the US Federal Communications Commission (FCC) work in this realm, due to the economies of scale and cost savings related to equipment costs. In harmonizing the band with our US neighbours' FCC requirements, we gain access to a larger pool of consumer devices at lower cost, given the larger US market dynamics. Furthermore, in harmonizing the 6GHz band with the US FCC designations, we also gain an interoperability advantage with US First Responders in the event of cross-border assistance during emergency events (e.g., staff and vehicles crossing the border to assist in Forest Fires, flooding disaster recovery, earthquake emergency assistance teams, etc.).

24. We provide an additional note in this response related to the role of unlicensed spectrum in our proposed "Het-Net" architecture for Public Safety Broadband (PSBN) networks, which affords multiple Public Safety fall-back systems in disasters. In looking at building telecom networks that underpin a digital society, building-in resiliency and "graceful fall-back modes" from the start of design is a key tenet for Public Safety and mission-critical networks.

25. Graceful fallback modes and pre-planned interoperability – via a provincial or multi-regional agency or arms-length operational corporation (e.g. the E-Comm model in British Columbia – see www.ecomm911.ca) provides a coordination function and added layer of network operations / services that ensure interoperability is pre-planned, with defined multi-layered coverage availability throughout a service region, and with seamless roaming across a hierarchy of networks.

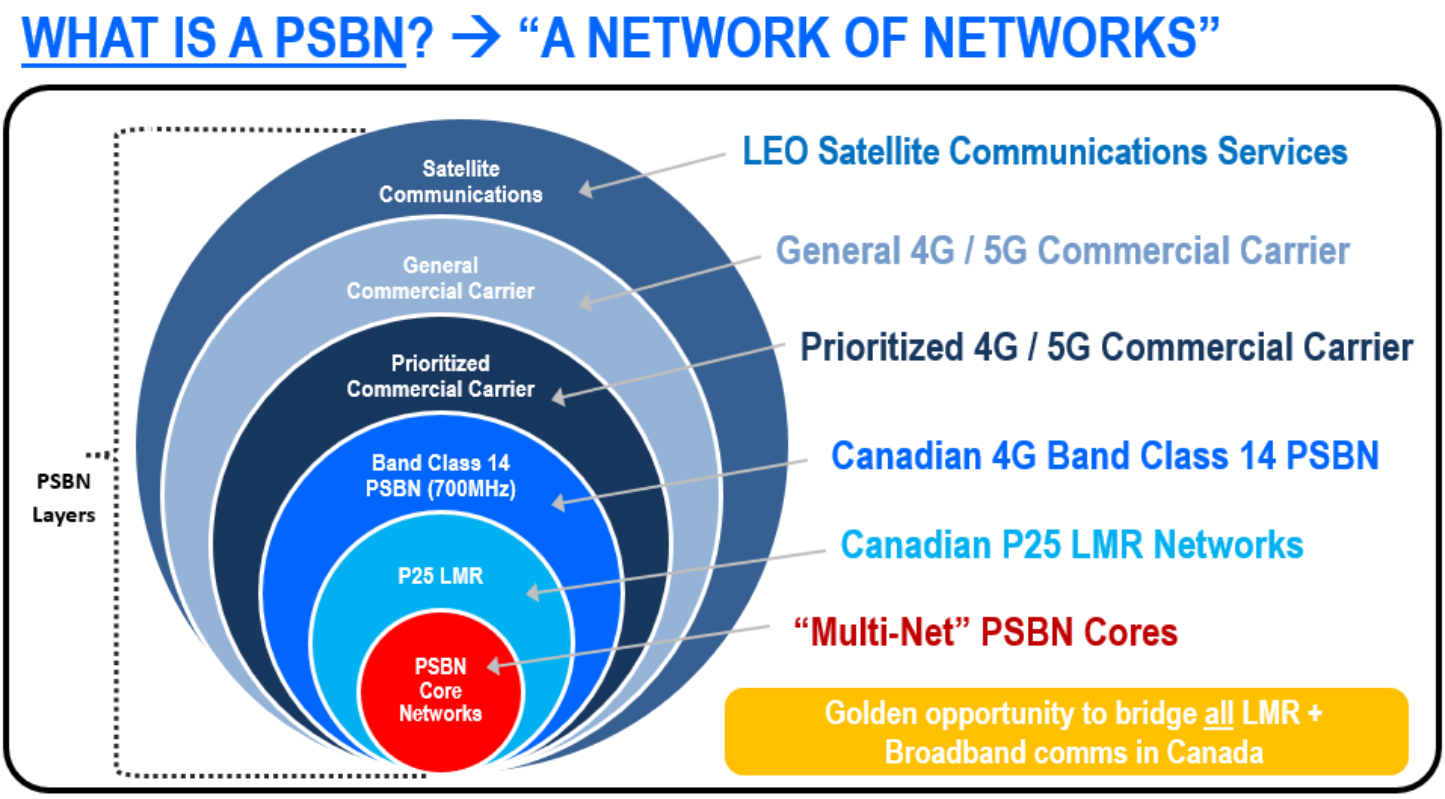

***Figure 1**: Diagram showing the PSBN Innovation Alliance "Network of Networks" and Het-Net concept for a holistic Canadian PSBN solution.*

26. In the PSBN Innovation Alliance proposal for a Canadian Public Safety Broadband Model – a Heterogeneous Network (or “Het-Net”) architecture is used as a part of the pragmatic reality of living in an era of intense technology evolution, with several concurrent generations of technology in the market all at the same time. For example, in the Canadian market in the 3GPP standards space we have 3G, 4G and 5G infrastructure generations currently co-existing in MNO infrastructure, and with future advanced Low Earth Orbit (LEO) satellite network services (e.g. Telesat) and new 5G NR-U / WiFi 6e unlicensed services coming within the next 5 years.

27. In turn, these current broadband technologies co-exist with legacy Land Mobile Radio (LMR) and Geosynchronous satellite technologies, and in some countries even 2G legacy cellular networks – which each have a niche value proposition which is propping-up and driving their extended lifecycles and respective market longevity. (See Reference [C52] for a discussion on lifecycle overlap).

28. To compound the issues related to network evolution - future 5G network technologies are already arriving – with the advent of “quasi un-licensed” CBRS (3.5GHz spectrum) services in the USA, with near-term plans for the auction of portions of the 3.5GHz spectrum to proceed in Canada in late 2020.

29. Other early harbingers of more exotic 6G technologies (such as drone-based 4G/5G wide-area hotspots for disaster contingency, or nomadic blimps that can ride over top of a damaged city to provide a ubiquitous blanket of 5G coverage) – are already arriving in working proof-of-concepts that are available for purchase today.

30. Enhanced municipal Wi-Fi networks also appear to be making a come-back in markets, with growth in saturation and boost in broadband speeds, making WiFi a viable option to support VoIP based calls for Emergency Responders as a network of last resort via PTT-over-cellular applications, in a hierarchy of “graceful failover” options.

31. This Het-Net PSBN philosophy – “where the service is not the underlying physical technology” - can be thought of in some respects as analogous to the recent rise and evolution of concepts as the “virtualization” of hardware (e.g., VMWare), and service-oriented architectures (e.g., SD-WAN technology in transport networks) – where the underlying physical layers are abstracted from the fundamental service via a presentation layer.

32. In short – in our data-oriented future in Public Safety communications, with video as an ultimate societal trend for 911 Emergency Responders to interact with civilians and society at large, the use of unlicensed and semi-licensed technologies such as WiFi 6e, 5G NR-U and future CBRS systems will potentially have a role to play in a multi-layered network design for Public Safety – and in turn also helps necessitate using a “Network of Networks” or Het-Net design approach in building a PSBN model that can last the long-term and provide the resiliency needed for data services.

33. Over time, various technologies among these communications layers will fade and become obsolete, and be replaced by other future generations and innovations – but the key tenet behind our PSBN model is that the reliable Public Safety (PSBN) service in Canada is thought of as a service that straddles multiple networks – and multiple spectrum classes – in a “Network of Networks” model.

34. In the case of PSBNs, a “Network of Networks” model builds in resiliency with multiple layers that each provide a degree of failover in rural settings with a single layer of Radio Access Layer infrastructure sites (e.g., Broadband 4G/5G failover to LMR - - or potentially in the future - - Wide-Area 4G/5G Broadband failover to LEO Satellite services - - or LEO Satellite services fallback to LMR).

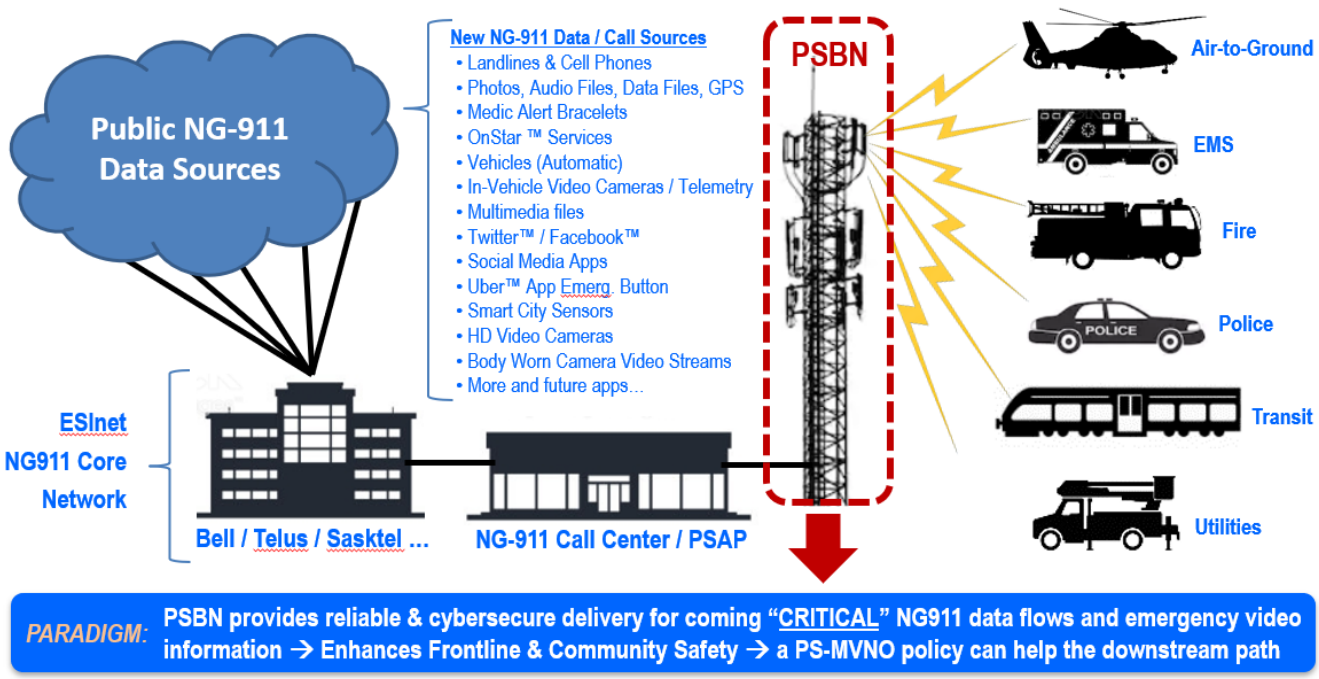

***Figure 2**: Diagram showing the PSBN Innovation Alliance "Next Gen 9-1-1" linkage between PSBNs and future 911 data services. Providing spectrum resources – including prioritization and pre-emption in unlicensed bands run via AFCs is key to lifesaving 911 data access in times where minutes and seconds can mean the difference between life and death for medical casualties in emergencies.*

35. Lastly, per our summary in Figure 2 above, we respectfully note that mandating a special class of QPP / prioritization service for emergency responders in any future AFC / DSA mechanisms is a key societal benefit, and should figure in any plans for AFC / DSA contractual terms or licenses. With growing data needs and ever-increasing data flows as part of 911 communications, we need to ensure that AFCs also provide for digital prioritization for First Responder critical data.

36. In summary, we suggest that Public Safety will be a key user and beneficiary of the 6GHz band alongside society at large, given the growing view that data has become as important as voice communications in the provision of effective, coordinated and rapid lifesaving 911 emergency response.

37. We now provide answers to the specific questions called out and posed by ISED within the consultation:

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38. Q1.) ISED is seeking comments on the timelines for the availability of:

    a. Low-power equipment ecosystems, both WiFi 6E and 5G NR-U
    b. Standard power equipment ecosystems, both WiFi 6E and 5G NR-U, under the control of an AFC
    c. AFC

Answer 1.) The PIA suggests that a viable ecosystem of devices is indeed being developed for both WiFi 6E and 5G NR-U based on discussions with vendors to date[1,2,3.] Additionally, we suggest that viable AFC systems are also under development. We defer specific responses on dates for availability to equipment manufacturers responding to this consultation.

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39. Q2.) ISED is seeking comments on its proposals to allow license-exempt RLAN use in the 5925-7125 MHz band:

Answer 2.) The PIA suggests that ISED proceed with plans for license exempt usage in alignment with the band plans and power levels proposed by the US FCC for the same 6GHz spectrum.

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40. Q3.) ISED is seeking comments on the proposed footnote CXX and the changes to the CTFA as shown in table 2:

Answer 3.) The PIA concurs with the Cxx footnote per the SMSE-014-20 indicated text, and also the contents of Table 2.

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41. Q4.) ISED is seeking comments on the proposed rules for standard-power RLANs:

a. indoor and outdoor operation would be permitted
b. RLAN access points would only be permitted to operate under the control of an AFC system in the 5925-6875 MHz frequency range
c. maximum permitted e.i.r.p. would be 36 dBm
d. maximum permitted power spectral density would be limited to 23 dBm/MHz
e. use of a vertical elevation mask, with a maximum e.i.r.p. of 125 mW at elevation angles above 30 degrees over the horizon, would be required

Answer 4.) The PIA concurs with the above technical proposals for the specified sub-bands of the 6GHz band.

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42. Q5.) ISED is seeking comments on allowing access to the additional 100MHz of spectrum in the 6425-6525MHz sub-band for standard-power operation.

Answer 5.) The PIA concurs with potential standard power operation in this 6425-6525 sub-band given the lack of incumbent television pick-up services as compared to the US market, which should permit a higher power output and hence greater range in this sub-band. However, the potential market and ecosystem for such devices will likely be smaller due to larger US market which would be utilizing lower-power specifications in this sub-band, and so a potentially smaller ecosystem of devices would avail use of this higher power specification in Canada.

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[1] https://www.cnet.com/news/wi-fi-6-devices-top-compatible-phones-laptops-gadgets-routers-thus-far/
[2] https://www.qualcomm.com/invention/5g/5g-unlicensed-shared-spectrum
[3] https://www.ericsson.com/en/blog/2020/9/3gpp-technologies-unlicensed-spectrum

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43. Q6.) ISED is seeking comments on the equipment availability of standard-power RLANs in the 6425-6525 MHz band and the impact on the development of AFC systems for Canada due to a potential lack of international harmonization for that sub-band.

Answer 6.) As noted in our response to Q5 above, there will likely be a smaller ecosystem of devices that will support modification to power levels in the 6425-6525MHz sub-band, and AFC systems would potentially also need customization for controlling this sub-band. As such the potential benefit of deviating from the US FCC specification may be marginal, with a possibility of added cost to products required for Canada-specific customization of power levels and AFC control. The alternative of full harmonization with the US FCC in this sub-band may be more beneficial in terms of cost – and in ease of cross-border interoperability of devices for emergency responders, and where a policy alternative could be to instead permit similar television pick-up services in this sub-band in alignment with current US usage in this sub-band.

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44. Q7.) ISED is seeking comments on the proposed rules for low-power indoor-only RLANs:

a. operation would be permitted indoor only across the 5925-7125 MHz band
b. the use of a contention-based protocol (e.g. listen-before-talk) would be required
c. maximum permitted e.i.r.p. would be 30 dBm
d. maximum permitted power spectral density would be limited to 5 dBm/MHz

Answer 7.) The PIA agrees with the proposed low-power requirements for indoor-only RLANs.

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45. Q8.) ISED is seeking comments on the proposed rules for very low-power RLAN devices:

a. operation would be permitted indoors and outdoors across the frequency range 5925-7125 MHz band
b. the use of a contention-based protocol (e.g. listen-before-talk) would be required
c. maximum permitted e.i.r.p. would be 14 dBm
d. maximum permitted power spectral density would be limited to -8 dBm/MHz

Answer 8.) The PIA agrees with the proposed very low-power requirements for RLANs.

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46. Q9.) ISED is seeking comments on potential business models for AFC administrators to operatie their AFC systems in Canada

Answer 9.) The PIA proposes that various models exist and are possible, along the lines of AFC paradigms in effect with new CBRS systems in the US. In this case, regional charters are contracted by government to provide these AFC services, on renewable terms. Alternative approaches could be an auction for provision of these services, or a deferral to open-market competition whereby new service providers can compete for such services on a regional basis in an open / free market. The PIA defers to equipment vendors and service operators for further discussion on this question.

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47. Q10.) ISED is seeking comments its proposal to permit the approval of multiple, third party AFC systems, taking into account the potential for the development of a sustainable market for AFC systems in Canada.

Answer 10.) The PIA agrees with the ISED proposal for establishment of an AFC market. We note however, in particular that any license terms for such AFC service providers should require contractual text that binds these AFC operators to making available prioritization & pre-emption (QPP) services and a “Public Safety” service tier – at fair CRTC established rates for Public Safety QPP services in unlicensed spectrum. Regional, provincial and national Public Safety agencies should have an ability to register their devices with such AFC service providers, to be dynamically granted higher priority access in support of their lifesaving mission, for the reasons outlined in our introduction to this response earlier in this document.

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48. Q11.) ISED is seeking comments on potential exist strategies if the AFC administrator decides to cease operation in Canada.

Answer 11.) The PIA proposes that in license terms that ISED establishes for AFC service providers, that there be a continuity of operation and market exit provisions, where the databases and information held by a designated AFC provider be transitioned to a new AFC that may inherit operations or regional monopoly of coordination in a given region. By mandating a seamless transfer of databases and stipulating a contractually enforceable exit period up front, in the event of bankruptcy or other exit, that these solution providers be required to transition seamless operations to a new entrant service provider that would take over AFC operation in a given region.

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49. Q12.) ISED is seeking comments on adopting an AFC system model that is harmonized to the maximum extent possible with the AFC system model being implemented in the US and other international markets.

Answer 12.) The PIA concurs with harmonization of the AFC system model with that being enacted in the US. This harmonization will be beneficial for ease of cross-border coordination and interoperation between Public Safety agencies in mutual-aid scenarios. Please refer to our discussion on this item of cross-border coordination of spectrum bands and the advantages and use cases this enables for Public Safety in terms of better interoperability.

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50. Q13.) ISED is seeking comments on the implementation considerations for the operation of an AFC system, specifically:

a. information required from licensed users
b. interference protection criteria for computation of exclusion zones
c. information required from standard-power APs
d. frequency of AFC update of licensee information
e. security and privacy requirements

Answer 13.) The PIA suggests that implementation of such an AFC system and the noted parameters is feasible, and largely proven in concept through the CBRS initiative in the US markets. In the case of the proposed Public Safety QPP service (prioritization and pre-emption), local and regional / national Public Safety agencies should be able to provide a list of device identifiers (MAC addresses or similar) that First Responders would use, and have those devices

prioritized for QPP service at fair prevailing market prices, or at wholesale rates for Public Safety at rates specified by the CRTC.

This requirement for special “digital right of way” treatment for 911 emergency responders should be enshrined in the AFC license requirements – and such new license terms for 911 emergency responders accordingly added to the proposed terms in the ISED SMSE-014-20 terms included at the end of the consultation document.

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51. Q14.) ISED is seeking comments on any additional considerations, limits or general concerns that should be taken into account in setting detailed standards and procedures for AFC operation.

Answer 14.) The PIA suggests that our proposed Public Safety QPP service feature in commercial AFCs (i.e., prioritization and pre-emption), be required for local and regional / national Public Safety agencies, such that these agencies should be able to provide a list of device identifiers to AFC administrators (MAC addresses or similar). First Responders should be then permitted to use, and have those devices prioritized for QPP service at fair prevailing market prices, or at wholesale rates for Public Safety at rates specified by the CRTC. Fees for such contracting of Public Safety prioritization and service should be fair cost, and we propose that the CRTC would be a good and fair arbiter of such costs for Public Safety QPP users.

ISED should accordingly add new terms related to AFC requirements for Public Safety users in any final AFC license terms and procedures it establishes for the 6GHz band. The PIA would be pleased to assist in any such developments or in the definition of exact license terms for this Public Safety QPP requirement in the 6GHz band.

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52. Q15.) ISED is seeking comments on its proposal to require AFC systems to protect the following types of licensed stations from standard power APs:

    a. fixed microwave stations
    b. fixed point-to-point television auxiliary stations
    c. radio astronomy stations

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Answer 14.) The PIA agrees with the proposed protection of noted licensed stations and incumbents.

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53. Q16.) ISED is seeking comments on the sample agreement related to the designation and operation of an AFC system in Canada

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Answer 16.) The PIA agrees with the ISED proposal for establishment of an AFC market. We note however, in particular that any license terms for such AFC service providers should require contractual text that binds these AFC operators to making available prioritization & pre-emption (QPP) services and a “Public Safety” service tier – at fair CRTC established rates for Public Safety QPP services in unlicensed spectrum. Regional, provincial and national Public Safety agencies should have an ability to register their devices with such AFC service providers, to be dynamically granted higher priority access in support of their lifesaving mission, for the reasons outlined in our introduction to this response earlier in this document.

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54. Q17.) ISED is seeking comments on the proposed approach to incremental implementation of an AFC system in Canada

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Answer 17.) The PIA agrees with the proposal for incremental implementation as a good way to de-risk AFC implementation, and to potentially share synergies with future White-Space spectrum AFC systems.

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55. Q17.) ISED is seeking comments on the objective to maximize the potential for synergies, where possible, in defining the technical and administrative requirements for the respective databases addressing different bands under different technical regimes.

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Answer 17.) The PIA agrees with the proposal to potentially share synergies with future White-Space spectrum AFC systems.

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56. To conclude our reply comments, we once again appreciate ISED's diligent work on spectrum policy in Canada, and we respectfully note that our submission is simply intended to provide potential technical and business model considerations for ISED, based on our experiences in Public Safety infrastructure and telecommunications.

57. The telecom related needs of Public Safety agencies are crucially important to ensuring the continuity of lifesaving 911 calls and 911 field operations in Canada, and we therefore suggest ISED should consider our proposals on 6GHz as related to QPP for First Responders, and the inter-related role that 6GHz plans in a "het-net" strategy for Public Safety Broadband Networks , and their potential role within current and future 5G band plans. Consideration of Public Safety in long-term 5G spectrum and unlicensed allocation strategy, and PSBN strategy in low-, mid- and high-bands, is essential for 911 response.

58. We would like to offer to attend any in-person or virtual discussions arising from this consultation, and we are available to ISED to answer and clarify any questions, or to review aspects of our proposals.

C. SIGNATURES:

59. This submission document is provided for the consideration by ISED in relation to the forthcoming re-deployment of spectrum in the 6GHz band, and specifically in support of the data communications needs of First Responders and improved 911 services across Canada.

60. Our submission aim is to ensure the creation of a robust, Cybersecure, cost effective and resilient 911 and PSBN infrastructure in Canada to addresses the diverse needs of Public Safety agencies across Canada, and to provide potential ideas and suggestions for areas that may merit further consideration by all tiers of government.

61. Public Safety agencies represent a set of very important stakeholders with regard to the continuity of operations of telecommunications in Canada, and fulfill an important service to society in their lifesaving missions, and through their goal of improving the Community Safety and Wellbeing of Canadians from coast to coast.

62. We respectfully offer to attend and present at any future in-person oral proceedings, or to provide supplemental information as a part of this ISED consultation.

63. We appreciate this opportunity to submit our analysis and findings for review, and remain available for any questions or desired discussions with ISED and Canadian levels of government studying the range of options for future Public Safety telecommunications policy.

Yours sincerely,

By: _____

Deputy Chief Anthony Odoardi
Peel Regional Police Service
Executive Director PSBN Innovation Alliance

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