

# SaskTel Comments:

Gazette Notice SLPB-002-20

Consultation on the Technical and Policy  
Framework for the 3650-4200 MHz Band and  
Changes to the Frequency Allocation of the  
3500-3650 MHz Band

October 26, 2020

## **EXECUTIVE SUMMARY**

1. The following is a summary of SaskTel's submission in response to Gazette Notice SLPB-002-20 *Consultation on the Technical and Policy Framework for the 3650-4200 MHz Band and Changes to the Frequency Allocation of the 3500-3650 MHz Band* ("the Consultation").
2. This consultation is timely. The 3800 MHz band is a high priority spectrum for 5G services. Globally there is a lot of activity by many administrations to allocate this spectrum for mobile 5G services, and the 3<sup>rd</sup> Generation Partnership Project (3GPP) has included this band in industry standards as one of the first bands for 5G. Canada needs to follow with a timely spectrum auction in order to take advantage of the new 5G technology, and therefore allow Canadians to benefit from the new wireless broadband services being offered by new 5G networks.
3. SaskTel has reviewed the Consultation on the Department's proposed Technical and Policy Framework for the 3800 MHz band. As a regional-based service provider, SaskTel hereby provides the Department input, suggestions, and recommendations on the questions raised in the Consultation.

### **Changes to Spectrum Utilization:**

4. SaskTel agrees with the ISED proposal to add a primary mobile service allocation in the 3700-4000 MHz band to the Canadian Table of Frequency Allocations, and the proposal to implement flexible use licensing allowing both fixed and mobile services in the 3650-4000 MHz band. The introduction of mobile services in the 3700-4000 MHz is in alignment with other jurisdictions such as the United States, the European Union, Japan, and the United Kingdom. This will enable the deployment of 5G technologies that leverages a 3GPP standardized equipment and device ecosystem that is developing globally in the 3800 MHz band, and Canadians will benefit greatly from economies of scale arising from this global device ecosystem.

**5G Equipment Ecosystem:**

5. It is quite clear to SaskTel that the product ecosystem for band n78 is well developed, and 5G equipment is readily available for this band. The band n78 ecosystem has been driven by numerous European / Asian countries allocating and licensing band n78 spectrum for 5G. By the time Canada completes the planned 3500 MHz spectrum auction and the 3450-3650 MHz band spectrum is licensed and made available for deployment in Canada, band n78 equipment as well as devices for the Canadian market should be readily available.
6. Although the band n77 ecosystem is currently not as mature as the band n78 ecosystem, that is expected to change shortly, being driven by decisions in the United States to auction flexible use licences in the 3700-3980 MHz band for 5G. The US market will drive a band n77-based ecosystem for infrastructure equipment and devices operable in the 3700-3980 MHz band. It is expected that band n77 equipment will be available in the Canadian market in time for deployment after the 3800 MHz spectrum auction is completed.
7. SaskTel recommends that Canada aligns technical rules for the 3800 MHz band with the US Federal Communications Commission (FCC) technical rules, while maintaining alignment with European Union (EU) rules for 3500 MHz equipment.

**Changes to Fixed Satellite (FSS) in the 3700-4200 MHz band:**

8. SaskTel also agrees with proposals made by the Department that will allow for the transition of existing Fixed Satellite Services (FSS) services from the 3700-4000 MHz band into the 4000-4200 MHz band. In alignment with US FCC rules, SaskTel agrees with the proposal to implement a 20 MHz guard band to protect FSS operations from future flexible use systems in the 3700-3980 MHz band. SaskTel understands that protection of FSS operations in the 4000-4200 MHz band will require not only the use of the 20 MHz guard band, but also the application of appropriate PFD power limits and out-of-band emission limits on flexible use equipment, and the use of narrower band pass filters on incumbent FSS earth station receivers.

9. These measures will allow, after the transition of FSS operations, the deployment of flexible use systems using 5G technology in the 3650-3980 MHz band.
10. SaskTel agrees with the proposal to maintain a primary allocation to FSS in the entire 3700-4200 MHz band, and we agree with the proposal that existing FSS earth stations in remote satellite-dependent areas remain licensed in the entire 3700-4200 MHz band. This would allow the incumbent FSS earth stations in these remote satellite-dependent areas to continue operation without incurring the costs of retuning and retrofitting equipment.
11. SaskTel currently operates a number of C-band FSS earth stations in Saskatchewan. The majority of the C-band earth stations are used for video programming distribution to rural communities. There are a small handful of broadband data connections providing internet service to a few locations.
12. SaskTel sees the demand for satellite services in these rural communities as stable. We do not anticipate any significant growth. The vast majority of the rural communities in northern Saskatchewan are served with either fibre optics or terrestrial fixed microwave radio links. We also do not anticipate any significant growth with the video distribution services.

**Block Sizes:**

13. SaskTel agrees with the ISED proposal to establish unpaired block sizes of 10 MHz for both the 3650-3700 MHz and the 3700-3980 MHz bands. This is in alignment with 3GPP standards, and by allowing the aggregation of multiple 10 MHz blocks potential licence holders can acquire licences for the large bandwidths that are optimal for 5G technologies.

**Existing Users - WBS:**

14. The Department is proposing to move existing WBS systems from the 3650-3700 MHz band to the 3900-3980 MHz band. This will allow for the orderly transition to new technical rules for flexible use licensing allowing both fixed and mobile services using equipment based on 3GPP standards, and in addition provide WBS systems access to a wider 80 MHz of shared spectrum. This is described

as Option 2 in the Consultation. Having access to 80 MHz of spectrum will allow WBS operators to offer higher speeds and therefore a better opportunity to achieve the CRTC minimum broadband speeds of 50/10 Mb/s in a shared spectrum environment. Alternatively, the additional spectrum could allow more operators to provide service in an area.

**Shared spectrum licensing process for 3900-3980 MHz:**

15. In response to the Department's request for preliminary comments on a future shared licensing process for the 3900-3980 MHz band, SaskTel has submitted to the Department that a database approach to spectrum sharing should not be considered because this would require customized equipment and devices to be designed and certified solely for the Canadian market. It is very unlikely that the 3GPP standards group would standardize a custom database sharing solution for the relatively small-sized Canadian market. Without the benefits of a large standardized equipment ecosystem, equipment and device prices will be substantially higher, and interest in this spectrum band will dwindle considerably due to higher cost equipment.
16. SaskTel also notes that although a database-based sharing approach has been launched in the CBRS band in the much larger United States market, this was only done because it was necessary in the United States to protect high-priority incumbent transitory military users in the CBRS band. Such a situation does not exist in Canada, as coordination can be accomplished both with new users and with any incumbent FSS users that are still in operation.
17. SaskTel suggests that licensees in the 3900-3980 MHz band be encouraged to utilize 3GPP-based standardized infrastructure equipment and user devices. The use of a common equipment standard will allow for more effective coexistence measures. For example, the 3GPP standards allow for TDD synchronization between operators when required.

**Definition of Satellite-dependent areas:**

18. Considering the extent and location of terrestrial telecommunications infrastructure in Saskatchewan, the designation of Tier 4 service area 4-130

(Northern Saskatchewan) as the only satellite-dependent area in Saskatchewan is reasonable. This adequately captures the remote areas of Saskatchewan that should be considered satellite dependent. Therefore, with regards to Saskatchewan SaskTel can accept the Department's proposal to use the Tier 4 service areas listed in Annex E of the Consultation as the basis for the designation of satellite-dependent areas.

19. SaskTel can also accept use of the Tier 5 service areas categorized as "remote" areas<sup>1</sup> for the designation of satellite-dependent areas. The geographical area for the Tier 5 service areas designated as "remote" in Saskatchewan corresponds to the same geographical area being proposed to be designated as satellite dependent as per the proposed Tier 4 service areas given in Annex E of the Consultation.

**Technical Considerations:**

20. SaskTel has provided input on technical considerations and coexistence requirements for the different services sharing the spectrum and operating in adjacent bands.
21. SaskTel agrees with the ISED proposal to rely on technical limits and coordination procedures rather than mandate specific technology solutions to address interference issues between TDD-based flexible use systems in the 3650-3980 MHz band. SaskTel believes it is best to encourage operators to coordinate with each other to determine the best solutions to mitigate interference, including TDD synchronization using 3GPP standards and methods. This is similar to the approach taken by the Department in SRSP-520 covering the 3450-3650 MHz band.
22. The results of a study conducted by RTCA Inc. that assessed the potential impacts of interference from 5G systems in the 3.7-3.98 GHz band on radar altimeters operating in the 4.2-4.4 GHz range were recently released.<sup>2</sup> The study

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<sup>1</sup> The Consultation paragraph 119

<sup>2</sup> "Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations" (RTCA Paper No. 200-20/PMC-2042) available here: [https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report\\_274-20-PMC-2073\\_accepted\\_changes.pdf](https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report_274-20-PMC-2073_accepted_changes.pdf)

shows potentially serious interference can occur with radar altimeter operation despite the utilization of a 220 MHz guard band. The results of this study need to be studied further and validated, and any appropriate mitigation measures need to be investigated. SaskTel agrees with the RABC in urging the Department to closely monitor developments on this issue in the United States to determine what, if any, additional interference mitigation measures will be required.

**Licensing process for the new flexible use licences:**

23. SaskTel anticipates that there will be high demand for the flexible use licences being made available in the 3800 MHz band, and that demand will exceed supply. Therefore, SaskTel agrees with the ISED proposal to use a public spectrum auction licensing process to allocate and assign the 3800 MHz band flexible use licences, and SaskTel recommends that the 3800 MHz spectrum auction be administered by ISED.
24. SaskTel notes the Department is expecting the 3800 MHz spectrum auction to take place sometime in 2023, and that a future consultation will include auction rules and pro-competition measures for the auction, as well as more details such as conditions of licence.

**Proposed accelerated spectrum clearing approach (the “Telesat proposal”):**

25. SaskTel has reviewed the proposal submitted by Telesat to conduct a private sale of repurposed spectrum in the 3800 MHz band. Telesat has proposed a two-phase process to clear Fixed Satellite Service (FSS) spectrum in the 3700-3900 MHz and the 3900-4100 MHz ranges. Once the spectrum is cleared, it has been proposed by Telesat that the Department grant Telesat (at no charge) a nation-wide flexible use (Fixed and Mobile) licence for the cleared FSS satellite spectrum. Through private sales Telesat would then make this spectrum available to mobile wireless service providers, presumably to the highest bidder. Telesat would then utilize the funds raised by the sale of the spectrum licences to fund the large relocation costs incurred to clear the FSS spectrum.
26. Although SaskTel does recognize the high costs involved for both earth station owners and satellite operators in the transition process for FSS services in the

3800 MHz band, and notes that revenue from the proposed private sale of spectrum would fund the relocation costs, SaskTel is opposed to the Telesat proposal to utilize private spectrum sales to assign flexible use licences in the 3800 MHz band. The Telesat proposal would not be in the best interest of Canadians. SaskTel believes that a public spectrum auction administered by ISED will provide greater benefits to Canadians.

27. As with all spectrum, the 3800 MHz spectrum band is a public resource, and in particular the 3800 MHz spectrum band is far too valuable to the entire wireless industry to entrust licensee selection and the allocation of rights to the spectrum to a private sale process that both lacks transparency and is primarily motivated to maximize profit. Private spectrum sales such as that proposed by Telesat involve private negotiations between the two parties and are inherently not transparent. For competitive reasons the final sale price for the spectrum is almost never publicly revealed, nor are any other relevant terms and conditions.
28. Private spectrum sales are also not subject to any policies or procedures that would benefit the public interest such as pro-competitive measures and fair participation by all entities.
29. In contrast a government-led spectrum auction would be driven by public interests and policies and would include fair participation by both large and small entities, far more competitive pricing through an open bidding process, and most importantly transparent allocation and assignment of this valuable public resource.
30. SaskTel notes that as part of the 3800 MHz spectrum clearing process in the United States, the C-Band Alliance (a group of C-band satellite operators) also submitted to the Federal Communications Commission (FCC) a proposal similar to the Telesat proposal that advocated private spectrum sales for repurposed 3800 MHz band spectrum, rather than a public auction process run by the FCC. The FCC rejected the C-Band Alliance proposal for private spectrum sales in favour of an FCC-administered government auction for many of the same reasons



as explained by SaskTel, including lack of transparency, oversight, and no accountability to adhere to policies in the public interest.<sup>3</sup>

31. SaskTel therefore recommends that a public spectrum auction licensing process be used to allocate and assign the 3800 MHz flexible use licenses, and we recommend that the Telesat proposal for private spectrum sales be **denied**.
32. Should the Department determine it is in the public interest to provide compensation to satellite and earth station operators for their relocation costs, SaskTel would recommend that this funding be taken from the proceeds of a government-led public spectrum auction, as done previously in the United States, and not funded through private spectrum sales.

**Pro-competitive measures:**

33. It is expected that demand will exceed supply for the spectrum in the auctions for both the 3500 MHz and 3800 MHz bands, with a similar list of bidders for each auction. In order to level the playing field for smaller regional operators, pro-competitive measures will be required in the 3800 MHz band as they are required for the 3500 MHz band.
34. Due to the similarity of the two bands, SaskTel is recommending the use of set-aside spectrum in the 3800 MHz spectrum auction to promote competition. Based on the total minimum amount of 250 MHz of spectrum being auctioned, SaskTel recommends a set-aside of 100 MHz be imposed in the 3800 MHz band for bidders that are not large wireless service providers.

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<sup>3</sup> “*FCC Report and Order and Order of Proposed Modification*”, FCC 20-22, Released March 3, 2020

## INTRODUCTION

35. Saskatchewan Telecommunications (“SaskTel” or “the Company”) is pleased to provide this response to Gazette Notice SLPB-002-20 *Consultation on the Technical and Policy Framework for the 3650-4200 MHz Band and Changes to the Frequency Allocation of the 3500-3650 MHz Band* (“the Consultation”).
36. SaskTel has participated in the creation of the Radio Advisory Board of Canada (RABC) response to the Consultation and supports the RABC submission.
37. SaskTel’s detailed responses to the questions posed in the Consultation are below. The section numbering of this document corresponds to the section numbering of the Consultation. Failure to address any particular issue or item, or the Comments made by any other party, should not be construed as agreement with those Comments where such agreement is not in the interests of SaskTel.

## SASKTEL RESPONSE TO THE CONSULTATION ON THE TECHNICAL AND POLICY FRAMEWORK FOR THE 3650-4200 MHz BAND AND CHANGES TO THE FREQUENCY ALLOCATION OF THE 3500-3650 MHz BAND

### 5. *International Context*

#### 5.2. *Development of the 5G equipment ecosystem*

##### Q1

ISED is seeking comments on the timelines for the development of an equipment ecosystem using 5G technologies in the 3800 MHz band. In particular:

- a) the ecosystem maturity level and readiness of equipment under band classes n77 or n78 for the Canadian market
- b) the ability of existing or future base station radios to handle multiple technologies and band classes at the same time (i.e. whether all four band classes (B42, B43, n77 and n78) or a subset of these band classes are able to operate on the same base station radio) and how it may affect the adoption of 5G technologies in the 3800 MHz band.

38. Based upon discussions SaskTel has had with 5G equipment vendors regarding available 5G network infrastructure 5G devices, including information shared on product development timelines, it is quite clear to SaskTel that the product ecosystem for band n78 is well developed, and 5G equipment is readily available for this band. The band n78 ecosystem has been driven by numerous European /

Asian countries allocating and licensing band n78 spectrum for 5G. The band n78 equipment generally available can operate over the 3400-3700 MHz band. By the time Canada completes the planned 3500 MHz spectrum auction and the 3450-3650 MHz band spectrum is licensed and made available for deployment in Canada, band n78 equipment as well as devices for the Canadian market should be readily available.

39. Although the band n77 ecosystem is currently not as mature as the band n78 ecosystem, that is expected to change shortly, being driven by decisions in the United States to auction flexible use licences in the 3700-3980 MHz band for 5G. The US market will drive a band n77-based ecosystem for infrastructure equipment and devices operable in the 3700-3980 MHz band. It is expected that band n77 equipment will be available in the Canadian market in time for deployment after the 3800 MHz spectrum auction is completed.
40. It is technically feasible for infrastructure equipment to be designed to operate over both the 3400-3700 MHz (band n77/n78) and the 3700-3980 MHz band (n78), but design trade-off decisions must be made, and reduced performance and efficiency can be expected with multi-band equipment compared to equipment dedicated to a single band. These design decisions and trade-offs will be made by individual equipment vendors and are best addressed by each vendor.
41. In the case where operators are deploying 5G equipment in both the 3450-3650 MHz and the 3650-3980 MHz bands and the chosen vendor requires a separate base station radio for each band, the additional deployment costs of the second radio will impact the business case for the deployment. However, the significance of the impact on the business case can only be determined on a case by case basis, and therefore the impact on the adoption of 3800 MHz cannot be quantified at this time.

**Q2**

**ISED is seeking comments on the potential linkages between the equipment ecosystems using 5G technologies in the 3500 MHz and 3800 MHz bands. In particular:**

- a) whether contiguity between the 3500 MHz band and 3800 MHz band is preferred given that 3GPP specifications allows for non-contiguous carrier aggregation**
- b) whether there are any technical or operational impediments (e.g. equipment limitations/challenges to support aggregated use of spectrum, or requirements for additional base station radios) that would be incurred if operators have a large frequency separation between frequency blocks in one or both bands, and at what point (i.e. how wide the frequency separation) such impediments would become significant**
- c) whether the equipment ecosystem deployed for the 3500 MHz band will be able to operate in the 3800 MHz band, and whether this equipment could easily be extended to 3800 MHz after being deployed.**

- 42. Contiguous spectrum blocks are preferred as this would result in the most efficient utilization of the spectrum. Using a wideband carrier over multiple contiguous blocks allows for more efficient delivery of the data payload, with a lower proportion of overhead signalling and guard band space in the given spectrum.
- 43. Although contiguous blocks are preferred, it is not essential to have contiguous blocks of spectrum spanning the proposed 3500 and 3800 MHz bands. The 3GPP specifications do allow for non-contiguous carrier aggregation between both bands, and this capability can be utilized by the mobile wireless operator.
- 44. The technical and operational impediments regarding wide frequency separations between blocks, as well as the capability of RAN infrastructure equipment to operate over both the 3500 and 3800 MHz bands is vendor specific. Designing radio base stations allowing operation over wide frequency ranges covering both the 3500 and 3800 MHz band involves design trade-offs between the operating range and radio performance and cost. These decisions will be made by each vendor, and therefore these issues are best addressed by the equipment vendors.

**Q3**

**ISED is seeking comments on how the difference in technical rules between the U.S. and EU could impact Canada's ability to leverage the economies of scale from the global 3800 MHz ecosystem. In particular:**

- a) would the difference in technical rules (such as out-of-band-emission (OOBE) power limits) result in two distinct region-specific equipment ecosystems**
- b) which equipment ecosystem would be more suitable in the Canadian environment (noting that Canada has, for the most part, aligned with the U.S. on low- and high-band spectrum for 5G but in the mid-band, Canada is more aligned with the EU in the 3500 MHz band (3450-3650 MHz)) and specifically, whether Canada should generally align its technical rules with the U.S. or the EU in the 3800 MHz band.**

- 45. SaskTel recommends that Canada aligns technical rules for the 3800 MHz band with the US Federal Communications Commission (FCC) technical rules, while maintaining alignment with European Union (EU) rules for 3500 MHz equipment. In discussions with our vendors it is quite clear that a significant European-based ecosystem has developed for the 3400-3700 MHz band, and the aggressive FCC timelines for transitioning the 3800 MHz in the United States is driving the rapid creation of a US-based ecosystem for 3800 MHz. Leveraging the EU-based 3500 MHz band ecosystem and the US-based 3800 MHz band ecosystem allows Canada to begin deploying both spectrum bands almost immediately after the ISED licensing process is completed.
- 46. Although SaskTel anticipates that a 3800 MHz ecosystem based on EU technical rules may develop, it would not be beneficial to adopt EU-based technical rules in the 3800 MHz band because of the uncertain time frame for such an ecosystem to develop.

## **7. Changes to the spectrum utilization for the 3800 MHz band**

### **7.1 Introduction of mobile service in the 3700-4000 MHz band**

**Q4**

**ISED is seeking comments on the proposal to add a primary mobile service, except aeronautical mobile, allocation in the 3700-4000 MHz band to the CTFA and the specific changes shown in annex B.**

47. SaskTel agrees with the proposal to add a primary mobile service allocation to the 3700-4000 MHz band in the Canadian Table of Frequency Allocations (CTFA), as shown in Annex B of the Consultation. SaskTel also agrees with the proposed changes to the CFTA as given in Annex B of the Consultation allowing the introduction of mobile services on a primary basis in the 3700-4200 MHz band.
48. The introduction of mobile services in the 3700-4000 MHz is in alignment with other jurisdictions such as the United States, the European Union, Japan, and the United Kingdom. Canadians will benefit greatly from economies of scale due to the global device ecosystem that is being developed for this band.

### **7.2 Flexible use in the 3650-4000 MHz band**

**Q5**

**ISED is seeking comments on developing a flexible use licensing model for fixed and mobile services in the 3650-4000 MHz band.**

49. SaskTel agrees with the ISED proposal to implement a flexible use licensing model allowing both fixed and mobile services in the 3650-4000 MHz band. Flexible use licensing is the most appropriate choice for this band and would allow for innovation and for the provision of a variety of services to address different use cases. Flexible use licensing in the 3800 MHz would also be in alignment with the flexible use licensing model implemented in the 3450-3650 MHz band.

### **7.3 Changes to the FSS use in the 3700-4200 MHz band**

#### **Harmonization of FSS use**

##### **Q6**

**Given the proposal in section 7.2 on developing a flexible use licensing model for fixed and mobile services in the 3650-4000 MHz band, ISED is seeking comments on the proposal that no new FSS earth stations be authorized in the 3700-4000 MHz band in the future and that the authorization of new FSS earth station licences be limited to the 4000-4200 MHz band.**

50. SaskTel agrees with proposal that no new FSS earth stations be authorized in the 3700-4000 MHz band in the future and that the authorization of new C-band FSS earth station licences be limited to the 4000-4200 MHz band.

#### **Guard band between flexible use and FSS**

##### **Q7**

**ISED is seeking comments on the proposal to implement a 20 MHz guard band between 3980-4000 MHz to protect FSS operations in 4000-4200 MHz band from proposed flexible use operations in the 3700-3980 MHz band.**

51. SaskTel agrees with the ISED proposal to implement a 20 MHz guard band between 3980-4000 MHz to protect FSS operations in the 4000-4200 MHz band from proposed flexible use operations in the 3700-3980 MHz band. This agrees with the FCC technical rules for the 3700-4200 MHz band.<sup>4</sup> SaskTel understands that protection of FSS operations in the 4000-4200 MHz band will require not only the use of the 20 MHz guard band, but also the application of appropriate PFD power limits and out-of-band emission limits on flexible use equipment, and the use of narrower band pass filters on incumbent FSS earth station receivers.

#### **Maintaining FSS services in satellite-dependent areas**

##### **Q8**

**ISED is seeking comments on the proposal to maintain a primary allocation to FSS in the entire 3700-4200 MHz band and the proposal that existing FSS earth stations in satellite-dependent areas remain licensed in the entire 3700-4200 MHz band.**

<sup>4</sup> See "FCC Report and Order and Order of Proposed Modification" FCC 20-22, released March 3, 2020

52. SaskTel agrees with the proposal to maintain a primary allocation to FSS in the entire 3700-4200 MHz band, and we agree with the proposal that existing FSS earth stations in satellite-dependent areas remain licensed in the entire 3700-4200 MHz band.
53. In the satellite-dependent areas as proposed by the Department<sup>5</sup>, options for terrestrial network connectivity can be limited and expensive. SaskTel agrees that in the proposed satellite-dependent areas C-band satellite links are often the only practical or economical choice to provide service to remote communities. It is also reasonable to assume that in these remote areas it will be some time before 5G services are deployed in the 3800 MHz band, as other spectrum bands might be more appropriate for serving rural areas. Due to the isolation of these remote areas, the costs to modify or replace FSS earth station equipment will be much higher compared to other locations.
54. Therefore, it is reasonable to allow incumbent C-band FSS earth stations in satellite-dependent areas to remain licensed in the entire 3700-4200 MHz band. This would allow the incumbent FSS earth stations in satellite-dependent areas to continue operation without incurring the costs of retuning and retrofitting equipment.
55. As proposed by the Department in the Consultation, the licensing of earth stations in the entire 3700-4200 MHz range would only apply to incumbent FSS earth stations, as the “*authorization of new FSS earth stations in satellite-dependent areas would be limited to the 4000-4200 MHz band.*”<sup>6</sup>

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<sup>5</sup> Proposed definitions of satellite-dependent areas from the Department are provided in Q21 of the Consultation. See SaskTel’s response to Q21.

<sup>6</sup> The Consultation, paragraph 71



**Q9**

**ISED is seeking comments on the future demand for C-band in rural and remote areas such as the North, including the following:**

- a) the trend towards using higher frequencies by FSS operations to provide broadband connectivity**
- b) the ability of using higher frequencies to replace current C-band capacity and the potential timelines**
- c) the possibility of a trend towards using 4000-4200 MHz in combination with other connectivity options (e.g. higher frequencies satellites or wireline solutions) and when it would be expected to be available for satellite-dependent areas.**

56. SaskTel currently operates a number of C-band FSS earth stations in Saskatchewan. The majority of the C-band earth stations are used for video programming distribution to rural communities. There are a small handful of broadband data connections providing Internet service to a few locations. There are two remote communities in northern Saskatchewan that are being served with voice telephony trunks using Ku-band earth stations.
57. SaskTel sees the demand for satellite services in these rural communities as stable. We do not anticipate any significant growth. The vast majority of the rural communities in northern Saskatchewan are served with either fibre optics or terrestrial fixed microwave radio links. We also do not anticipate any significant growth with the video distribution services.
58. SaskTel is currently in preliminary discussions with Telesat regarding plans to transition the incumbent C-band earth stations operated by SaskTel in response to the 3800 MHz band transition. At this point no firm transition plans have been established. It is therefore premature for SaskTel to comment on options such as higher frequency FSS bands (e.g. LEO satellites) or terrestrial options for replacement or transition of the FSS services provided by SaskTel.

**Q10**

**In addition to capacity requirements, ISED is seeking comments on other issues that should be considered in maintaining broadband connectivity in satellite-dependent areas.**

59. SaskTel currently has no comment on other issues that should be considered in maintaining broadband connectivity in satellite-dependent areas. SaskTel

however reserves the right to submit comments or reply comments in response to this question during the reply comment phase of this consultation process.

#### **7.4 Change in status of FSS in 3500-3700 MHz**

**Q11**

**ISED is seeking comments on its proposal to remove the FSS allocation in the 3500-3650 MHz band and to suppress Canadian footnote C20 in the CTFA as detailed in annex B.**

**In addition, ISED is seeking comments on the proposed grandfathering of the existing earth station operations listed in annex C, such that fixed or mobile stations in the 3500-3650 MHz band will be required to coordinate with these earth stations as specified in SRSP-520.**

60. SaskTel agrees with the ISED proposal to remove the FSS allocation in the 3500-3650 MHz band and to suppress Canadian footnote C20 from the CFTA as detailed in Annex B of the Consultation. We also agree with the ISED proposals to grandfather the two existing earth stations in Weir, Quebec as listed in Annex C of the Consultation, and the requirement for fixed and mobile licensees in the 3500-3650 MHz band to coordinate with these earth stations as specified in SRSP-520.
61. The removal of the primary allocation for Fixed Satellite Services in the 3500-3650 MHz band is in alignment with policy decisions that have been made for the 3500 MHz band, and with policies being proposed in the Consultation. SaskTel believes that the coordination requirements given in SRSP-520 are sufficient to protect the Weir, Quebec earth stations from interference.

**Q12**

**ISED is seeking comments on its proposal to remove the primary FSS allocation from 3650-3700 MHz and suppress Canadian footnote C33 in the CTFA as detailed in annex B.**

62. SaskTel agrees with the ISED proposal to remove the primary FSS allocation from the 3650-3700 MHz band and suppress Canadian footnote C33 in the CTFA as detailed in Annex B of the Consultation. Considering that there are no grandfathered FSS stations in this band, this proposal aligns with the policies proposed in the Consultation to introduce a flexible use licensing model for fixed and mobile services in the 3650-4000 MHz band.

## **8. Block sizes in the 3650-4000 MHz band**

### **Q13**

**ISED is seeking comments on:**

- a) establishing unpaired blocks of 10 MHz for the 3650-3700 MHz band**
- b) establishing unpaired blocks of 10 MHz for the 3700-3980 MHz band**

63. SaskTel agrees with the ISED proposal to establish unpaired block sizes of 10 MHz for both the 3650-3700 MHz and the 3700-3980 MHz bands. By allowing the aggregation of multiple 10 MHz blocks, potential licence holders can acquire licences for the large bandwidths that are optimal for 5G technologies. SaskTel notes that the proposed 10 MHz block sizes are compatible with 3GPP standards that define a wide variety of carrier bandwidths from 10 MHz to 100 MHz in these bands.

## **9. Treatment of existing users**

### **9.1 WBS systems in 3650-3700 MHz**

#### **9.1.1 Proposal for treatment of WBS incumbents**

### **Q14**

**Subsequent to changes to the spectrum utilization described in section 7 and recognizing the need to change the current WBS licensing model, ISED is seeking comments on its proposal to displace the existing WBS licensees and designate 80 MHz of spectrum available for the development of a new shared licensing process in the 3900-3980 MHz band as described in Option 2. Specifically, ISED is seeking comments on:**

- a) the amount of spectrum proposed (80 MHz) under a shared spectrum licensing process**
- b) whether there should be a provision that allows certain users (e.g. existing WBS licensees) priority licensing (e.g. an initial application window before accepting applications from others)**

**Preliminary comments on a future shared spectrum licensing process are being sought in section 9.1.4 below.**

64. SaskTel agrees with the Department's proposal to displace the existing WBS licensees and designate 80 MHz of spectrum for the development of a new shared licensing process in the 3900-3980 MHz band described as Option 2 in the Consultation.

65. Moving existing WBS systems from the 3650-3700 MHz band to the 3900-3980 MHz band allows for an orderly transition to new technical rules for flexible use licensing. For example, it would be difficult to transition from 25 MHz block sizes to 10 MHz block sizes in the same band while maintaining service. Moving to a new band would also allow for a more orderly introduction of the new proposed shared licensing process.
66. Utilizing the new proposed 3900-3980 MHz band also gives WBS systems access to a wider 80 MHz of spectrum. Having access to 80 MHz of spectrum will allow WBS operators to offer higher speeds and therefore a better opportunity to achieve the CRTC minimum broadband speeds of 50/10 Mb/s in a shared spectrum environment. Alternatively, the additional spectrum could allow more operators to provide service in an area.
67. SaskTel has no comment on the question of whether there should be a provision allowing certain users priority licensing through an initial advance application process prior to a general application process. Part of the reason for this is that the answer could depend on the details of the future proposed shared licensing process, which is so far undefined. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q15**

**Given the proposal to implement Option 2, ISED is seeking information on potential costs such as upgrading equipment, which may be incurred by WISPs that are displaced from 3650-3700 MHz to provide services using the 3900-3980 MHz band.**

68. SaskTel has no comment on potential costs that may be incurred by WISPs that are displaced from 3650-3700 MHz to provide services using the 3900-3980 MHz band. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

### **9.1.2 Proposed transition period for the displacement of WBS licensees**

**Q16**

**Based on the proposal to implement Option 2, ISED is seeking comments on the proposed displacement deadlines, with WBS operations in urban areas being displaced by December 2023 and all others by December 2025. Respondents are invited to propose other protection and displacement options for consideration, provided they include a strong rationale.**

69. SaskTel agrees with the displacement deadlines proposed by ISED for the transition of WBS systems to the new proposed 3900-3980 MHz band. We agree that the proposed deadlines of December 2023 for displacement of WBS operations within urban Tier 4 service areas and December 2025 for displacement of all other WBS systems.
70. From the date of publication of the Consultation, this provides a little more than three and five years depending on location to plan and implement the transition of urban and rural WBS systems respectively. This provides a good balance between the deployment of urban 5G systems while also recognizing that additional time will be required for the transition of WBS systems in rural areas.

**Q17**

**ISED is seeking comments on the Tier 4 service areas that would be considered urban as defined above and as listed in annex D.**

71. SaskTel agrees with the proposed urban Tier 4 service areas as defined in the Consultation<sup>7</sup> and as listed in Annex D of the Consultation.

### **9.1.3 Moratorium on new WBS station deployments**

**Q18**

**ISED is seeking comments on whether the moratorium should be extended to include all Tier 4 service areas.**

72. SaskTel has no comment on whether the moratorium on new WBS station deployments should be extended from urban Tier 4 service areas to include all Tier 4 service areas. SaskTel reserves the right to submit comments or reply

<sup>7</sup> The Consultation, paragraph 101

comments regarding this question during the reply comment phase of this consultation process.

#### **9.1.4 Initial consideration of the shared spectrum licensing process for 3900-3980 MHz**

**Q19**

**ISED is seeking preliminary comments on the future spectrum licensing process for 3900-3980 MHz, including the following:**

**a) what type of applications are envisioned for this spectrum**

73. ISED has proposed in the Consultation to implement some form of shared licensing in the 3900-3980 MHz band, with the details to be determined in a future consultation. SaskTel agrees with this approach.
74. With the opportunity to leverage the growing 3GPP band n77 equipment ecosystem and the proposed shared licensing process, SaskTel believes that the proposed 3900-3980 MHz band will enable innovation and the introduction of new uses for vertical industries. SaskTel agrees with the Department in their expectation that new use cases for this band will include not only rural fixed wireless access systems, but also private networks supporting vertical industries such as mining, farming, and manufacturing.<sup>8</sup> This spectrum will support and enable private broadband networks.
75. SaskTel is aware of industrial entities that have installed or are planning to install private LTE-based broadband networks to support industrial automation. One issue that is often encountered is access to spectrum for these private networks. The availability of shared licences in the 3900-3980 MHz band can provide a spectrum solution for these private networks. Further interest is expected in private broadband networks as 5G network equipment becomes more readily available, and the 3GPP band n77 standards that cover the 3900-3980 MHz band will allow private industrial users to leverage a substantial band n77 5G equipment ecosystem.

<sup>8</sup> The Consultation, paragraph 109

**Q19**

**ISED is seeking preliminary comments on the future spectrum licensing process for 3900-3980 MHz, including the following:**

**b) what type of shared licensing process ISED should consider (e.g. database approach, licensee to licensee coordination)**

76. SaskTel has no specific suggestions at this time regarding shared licensing process proposals that the Department should consider for the 3900-3980 MHz band.
77. However, SaskTel would recommend that the Department NOT consider a database approach to spectrum sharing in the 3900-3980 MHz band. The creation of a database approach would require customized equipment and devices to be designed and certified solely for the Canadian market. It is very unlikely that the 3GPP standards group would standardize a custom database sharing solution for the relatively small-sized Canadian market. Without the benefits of a large standardized equipment ecosystem, equipment and device prices will be substantially higher, and interest in this spectrum band will dwindle considerably due to higher cost equipment.
78. SaskTel also notes that although a database-based sharing approach has been launched in the CBRS band in the much larger United States market, this was only done because it was necessary in the United States to protect high-priority incumbent transitory military users in the CBRS band. Such a situation does not exist in Canada, as coordination can be accomplished both with new users and with any incumbent FSS users that are still in operation. SaskTel reiterates that a database-based approach for spectrum sharing would not be suitable for Canada in the 3900-3980 MHz band.

**Q19**

**ISED is seeking preliminary comments on the future spectrum licensing process for 3900-3980 MHz, including the following:**

**c) what additional measures ISED should consider employing to manage access to the band in high demand areas, such as major metropolitan centres**

79. SaskTel suggests that a mechanism to allow variable service area sizes for the shared licences be employed. For example, in major metropolitan areas where

there is high demand, low power licences can be issued covering a small area for use by private networks. With low power licences covering a small area, more private networks can be accommodated.

80. Medium power licences covering a larger area can be issued to those operators serving a larger number of customers over a wide area. With medium power licences, it might be possible to better accommodate multiple operators in each market.
81. High power licences covering large rural areas can be made available to rural fixed wireless access service providers allowing broadband services to be offered to rural and remote customers.
82. Using variable licence service areas would allow each licensee to better customize their licenced service area to their required coverage, and allow for more licensees to be accommodated in the band.

**Q19**

**ISED is seeking preliminary comments on the future spectrum licensing process for 3900-3980 MHz, including the following:**

- d) what technical restrictions should be considered (e.g. technical rules similar to adjacent 3500 MHz flexible use band with reduced power levels, a guard band between new flexible use systems below 3900 MHz, shared use above 3900 MHz, etc.)**

83. SaskTel suggests that licensees in the 3900-3980 MHz band be encouraged to utilize 3GPP-based standardized infrastructure equipment and user devices. The use of a common equipment standard will allow for more effective coexistence measures. For example, the 3GPP standards allow for TDD synchronization between operators when required.
84. As stated in SaskTel's response to Q19 c), SaskTel is suggesting low power licensees be issued for example to private broadband networks requiring coverage over a very limited area. Consideration will have to be given to co-existence between these low power private networks and higher power flexible use systems possibly deployed by a wireless service provider in the adjacent spectrum bands. This may necessitate the use of either geographical separation



or guard bands to mitigate interference issues that may result from the difference in base station power levels.

**Q19**

**ISED is seeking preliminary comments on the future spectrum licensing process for 3900-3980 MHz, including the following:**

**e) what type of eligibility criteria, if any, should be established**

85. SaskTel believes that the shared licences to be made available in the 3900-3980 MHz band should be freely available to all applicants because it is a shared band. This allows all potential licence holders the opportunity to utilize this spectrum.
86. SaskTel recommends that the only eligibility criteria for licensees in the 3900-3980 MHz band be the legal requirement that licence holders must comply on an ongoing basis with the applicable eligibility criteria in subsection 9(1) of the Radiocommunication Regulations.

**9.2 FSS earth stations in 3650-3700 MHz****9.2.1 Proposal for treatment of FSS incumbents in 3650-3700 MHz****Q20**

**ISED is seeking comments on its proposal that existing FSS earth stations licensed in 3650-3700 MHz after June 11, 2009, be permitted to continue to operate on a no-protection basis with respect to proposed new flexible use operations.**

87. SaskTel agrees with the ISED proposal to permit existing FSS earth stations licensed in the 3650-3700 MHz band after June 11, 2009 to continue to operate on a no-protection basis with respect to proposed new flexible use operations. This is in alignment with the ISED proposals in section 7.4.2 of the Consultation and the policies being proposed in the Consultation to introduce a flexible use licensing model allowing fixed and mobile services in the 3650-4000 MHz band.

**9.3 Definition of satellite-dependent areas****Q21**

**ISED is seeking comments on whether the Tier 4 service areas identified for exemption of certain provisions in GL-10 for mmWave bands as listed in annex E would be appropriate to apply for FSS operations in the 3700-4200 MHz band. ISED invites alternative proposals for areas that would be considered satellite-dependent (e.g. based on Tier 5 categories).**

88. Considering the extent and location of terrestrial telecommunications infrastructure in Saskatchewan, the designation of Tier 4 service area 4-130 (Northern Saskatchewan) as the only satellite-dependent area in Saskatchewan is reasonable. This adequately captures the remote areas of Saskatchewan that should be considered satellite dependent. Therefore, with regards to Saskatchewan SaskTel can accept the Department's proposal to use the Tier 4 service areas listed in Annex E of the Consultation as the basis for the designation of satellite-dependent areas.
89. SaskTel can also accept use of the Tier 5 service areas categorized as "remote" areas<sup>9</sup> for the designation of satellite-dependent areas. The geographical area for the Tier 5 service areas designated as "remote" in Saskatchewan corresponds to the same geographical area being proposed to be designated as satellite dependent as per the proposed Tier 4 service areas given in Annex E of the Consultation.
90. Having stated our agreement with ISED's proposed definition of satellite-dependent areas in Saskatchewan, SaskTel notes that there are concerns with the definition of satellite-dependent areas in other parts of the country. Some of these concerns were raised during RABC discussions on the 3800 MHz consultation, and some of the concerns are addressed in the RABC submission on the 3800 MHz consultation. These concerns are best addressed by operators that are serving these remote and not-so-remote areas.
91. SaskTel would suggest that the Department consider a modified list of "remote" Tier 5 service areas to create a definition of satellite-dependent areas that addresses the concerns raised in the RABC submission, and perhaps by other respondents to the Consultation.

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<sup>9</sup> The Consultation paragraph 119

**Q22**

**ISED is seeking comments on whether certain remote industry operations, for example offshore oil drilling platforms, should be included in the definition of satellite-dependent areas.**

92. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**9.4 FSS space station operations in 3700-4200 MHz****Q23**

**ISED is seeking comments on its proposal to modify the existing FSS satellite authorizations to limit FSS operations in 3700-4000 MHz in non-satellite-dependent areas of Canada to a no- interference basis. ISED is also seeking comments on the proposal to adjust the conditions of licence for FSS operations to reflect the proposals as of the FSS transition deadline, including the possible removal of a high expectation of renewal for the 3700-4000 MHz portion of the band.**

93. SaskTel agrees with the ISED proposals to modify the existing FSS satellite authorizations to limit FSS operations in the 3700-4000 MHz band in non-satellite-dependent areas of Canada to a non-interference basis, and to adjust the conditions of licence for FSS operations to reflect the proposals as of the Canadian FSS transition deadline. These proposals are in alignment with the policies being proposed in the Consultation to introduce a flexible use licensing model allowing fixed and mobile services in the 3650-4000 MHz band.

**Q24**

**ISED is seeking comments on its proposed date of December 2023 as the Canadian FSS transition deadline.**

94. SaskTel has no comment on the proposed date of December 2023 as the Canadian FSS transition deadline. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q25**

**ISED is seeking comments on how the U.S. transition will impact the availability of FSS capacity in Canada.**

95. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**9.5 Existing licensed FSS earth stations in 3700-4200 MHz****Q27**

**ISED is seeking comments on its proposed transition deadline of December 2023 for FSS earth stations, in which existing FSS earth station licences would be modified to 4000-4200 MHz in the relevant areas.**

96. SaskTel has no comment on the proposed FSS earth station transition deadline of December 2023 for modification of existing FSS earth stations in relevant areas to operate in the 4000-4200 MHz band. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q28**

**ISED is seeking comments on making amendments to the relevant conditions of licence and technical rules in the 3700-4200 MHz band as well as the 3450-3700 MHz band in order to implement the following proposals with respect to protection from interference:**

- a) prior to the transition deadline, existing licensed FSS earth stations may operate in the entire 3700-4200 MHz band in all areas and be protected from interference from flexible use operations both in-band (3700-3980 MHz) and the adjacent 3450-3700 MHz band**
- b) after the transition deadline, existing licensed FSS earth stations may continue to operate in the entire 3700-4200 MHz band in satellite-dependent areas and be protected from interference from in-band flexible use operations in 3700-3980 MHz, but would not be protected from flexible use operations in the adjacent 3450-3700 MHz band; however, ISED also proposes that flexible use licensees deploying stations in the 3450-3700 MHz band within 25 km of an existing licensed FSS earth station in the 3700-4200 MHz band be required to provide a notification to these operators, one year prior to the deployment of fixed or mobile stations**
- c) after the transition deadline, FSS earth stations would only be licensed to operate in the 4000-4200 MHz band in non-satellite-dependent areas and would be protected from flexible use operations in the adjacent 3700-3980 MHz band**
- d) after the transition deadline, FSS earth stations operating in 3700-4000 MHz, in all areas, which are not eligible for licensing could continue to operate as a licence-exempt station without protection from flexible use operations both in-band and adjacent band(s)**

97. SaskTel agrees with the ISED proposal to make amendments to the relevant conditions of licence and technical rules in the 3450-3700 MHz and 3700-4200 MHz bands in order to implement the four proposals with respect to protection from interference as detailed in Q28 in the Consultation.

**Q29**

**ISED is seeking comments on the proposed change to the CTF A to add the new footnote CZZ proposed above and shown in annex B.**

98. SaskTel agrees with the proposed changes to the CTF A to add the new footnote CZZ as proposed in the Consultation<sup>10</sup> and as shown in Annex B of the Consultation. These proposals are in alignment with the policies being proposed in the Consultation to introduce a flexible use licensing model allowing fixed and mobile services in the 3650-4000 MHz band.

<sup>10</sup> The Consultation, paragraph 137

**Q30**

**ISED is seeking comments on how to ensure the continued operation of gateways that support the provision of services in satellite-dependent areas, specifically:**

- a) how much spectrum would be required at these gateway sites**
- b) if these stations could be consolidated into two sites, away from major population centres, and where the best locations for those sites would be**

99. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**9.6 Existing licence-exempt FSS earth stations in 3700-4200 MHz****Q31**

**ISED is seeking comments on its proposal to issue interim authorizations for certain existing licence-exempt earth stations in the 3700-4200 MHz band.**

100. SaskTel agrees with ISED's proposal to issue interim authorizations for certain existing licence-exempt earth stations in the 3700-4200 MHz band, as detailed in section 9.6 of the Consultation.

**Q32**

**ISED is seeking comments on the proposed deadline of up to 90 days after the publication of a decision for submitting applications for these interim authorizations of existing licence-exempt FSS earth stations in the 3700-4200 MHz band.**

101. SaskTel agrees with the proposed deadline of up to 90 days after the publication date of the decision for submitting applications for interim authorizations of existing licence-exempt FSS earth stations in the 3700-4200 MHz band, as detailed in section 9.6 of the Consultation.

**Q33**

**ISED is seeking comments on its proposal that receive-only earth stations that are not eligible for an interim authorization or whose operators do not seek authorization, could continue to operate as a licence-exempt earth station on a no-protection basis.**

102. SaskTel agrees with the ISED proposal that receive-only earth stations that are not eligible for an interim authorization or whose operators do not seek

authorization can continue to operate as a licence-exempt earth station on a no-protection basis.

**Q34**

**ISED is seeking comments on its proposal that in non-satellite-dependent areas, existing earth stations that operate under interim authorizations receive in-band protection from flexible use operations in the 3700-3980 MHz band until the transition deadline.**

103. SaskTel agrees with the ISED proposal that in non-satellite-dependent areas existing earth stations that operate under interim authorizations would receive in-band protection from flexible use operations in the 3700-3980 MHz band until the FSS transition deadline.

**Q35**

**ISED is seeking comments on its proposal that in satellite-dependent areas, existing earth stations that operate under an interim authorization receive in-band protection from flexible use operations in the 3700-3980 MHz band before and after the transition deadline.**

104. SaskTel agrees with the ISED proposal that in satellite-dependent areas existing earth stations that operate under an interim authorization would receive in-band protection from flexible use operations in the 3700-3980 MHz band both before and after the FSS transition deadline.

**Q36**

**ISED is seeking comments on its proposal that in all areas, existing licence-exempt earth stations that operate under an interim authorization receive no protection from adjacent band WBS stations and flexible use stations operating below 3700 MHz before and after the transition deadline.**

105. SaskTel agrees with the ISED proposal that in all areas existing licence-exempt earth stations that operate under an interim authorization would receive no protection from adjacent band WBS stations and flexible use stations operating below 3700 MHz both before and after the FSS transition deadline.

**Q37**

**ISED is seeking comments on whether the interim authorization process should also apply to new receive-only FSS earth stations in the 4000-4200 MHz band.**

106. SaskTel agrees with the ISED proposal to allow the interim authorization process to also apply to new receive-only FSS earth stations in the 4000-4200 MHz band.

**Q38**

**ISED is seeking comments on the proposed conditions for interim authorizations for licence-exempt FSS earth stations in 3700-4200 MHz and new receive-only FSS earth stations in the 4000-4200 MHz portion of the band as detailed in annex G.**

107. SaskTel agrees with the conditions proposed by ISED for interim authorizations for licence-exempt FSS earth stations in the 3700-4200 MHz band and new receive-only FSS earth stations in the 4000-4200 MHz portion of the band as detailed in annex G of the Consultation.

**Q39**

**ISED is seeking comments on the proposed eligibility of licence-exempt stations that could apply for an interim authorization.**

108. SaskTel agrees with the proposed eligibility of licence-exempt stations that could apply for an interim authorization as detailed by the Department in paragraphs 150 through 152 of the Consultation.

**9.7 Fixed service in 3700-4200 MHz****Q40**

**ISED is seeking comments on its proposal to no longer issue new licences for fixed services to operate fixed point-to-point applications in the 3700-4000 MHz band.**

109. SaskTel agrees with the ISED proposal to no longer issue new licences to operate fixed point-to-point applications in the 3700-4000 MHz band. We do not see any interest in using this band for point-to-point applications, and other fixed spectrum bands are available for point-to-point applications.



**Q41**

**ISED is seeking comments on whether to allow new licences for fixed services to operate fixed point-to-point applications in the 4000-4200 MHz band.**

110. SaskTel sees no interest in using the 4000-4200 MHz band for fixed point-to-point applications. We therefore see no need to allow for the issuing of new licences for fixed services to operate fixed point-to-point applications in the 4000-4200 MHz band.

**Q42**

**ISED is seeking comments on the proposal to grandfather existing point-to-point operations in the 3700-4000 MHz band under existing licences for fixed service (as identified in annex A), such that flexible use systems in these two tiers may not claim protection from, nor cause interference to these fixed service stations.**

111. SaskTel agrees with the ISED proposal to grandfather existing point-to-point operations in the 3700-4000 MHz band under existing licences for fixed service as identified in Annex A of the Consultation. Under the ISED proposal flexible use systems in the two Tier 4 service areas identified in Annex A of the Consultation may not claim protection from, nor cause interference to these fixed service stations.
112. Because the two existing point-to-point links are located in remote areas, SaskTel believes that with proper coordination it should be possible for flexible use systems to coexist with the point-to-point links in these areas. Should this not be possible, the flexible use licensee(s) can be offered the option to negotiate a business arrangement with the fixed licensee to provide compensation for the replacement of the point-to-point links.

## **10. Technical considerations**

### **10.1 Coexistence between flexible use systems**

**Q43**

**ISED is seeking comments on the proposal to rely on technical limits and coordination procedures rather than mandate specific technology solutions (e.g. TDD synchronization between systems) to address interference issues between TDD flexible use systems in the 3650-3980 MHz band.**

113. SaskTel agrees with the ISED proposal to rely on technical limits and coordination procedures rather than mandate specific technology solutions to address interference issues between TDD-based flexible use systems in the 3650-3980 MHz band. SaskTel believes it is best to encourage operators to coordinate with each other to determine the best solutions to mitigate interference, including TDD synchronization using 3GPP standards and methods. This is similar to the approach taken by the Department in SRSP-520 covering the 3450-3650 MHz band.

**Q44**

**ISED is seeking comments on whether any additional measures should be taken to limit potential interference issues between flexible use systems in the 3650-3980 MHz band.**

114. It is generally in the best interest of all operators to cooperate and work together to implement measures such as TDD synchronization. The use of 3GPP methods and standards will be beneficial in the process. If the parties cannot reach an agreement, it may become necessary for the Department to consult with the affected parties and determine the necessary course of action.

## **10.2 Coexistence between flexible use systems and WBS systems prior to displacement**

**Q45**

**ISED is seeking comments on whether specific technical measures should be adopted to address potential interference issues between flexible use systems and WBS systems until the displacement deadline.**

- a) For co-channel flexible use and WBS operations in the 3650-3700 MHz band, what specific measures may be needed to protect WBS? For example, should new flexible use stations be required to coordinate with WBS stations within a specified distance prior to deployment? Alternatively, should a technical parameter such as a power flux density (pfd) trigger for coordination measured at the WBS receive antenna be adopted? Are there other more appropriate measures that ISED should consider? Should multiple measures, such as a combination of distance and pfd trigger for coordination, be adopted? How would these requirements impact the deployment of new flexible use stations?**

115. SaskTel agrees with the recommendation of the RABC in their submission that the guidelines for coordination and coexistence of flexible use systems are well defined in SRSP-520 and RSS-192. SaskTel concurs with the RABC proposal that these guidelines be applied to coordination with WBS systems. Further information can be found in the RABC response.

**Q45**

- b) For adjacent band flexible use systems, is there a need to adopt any additional measures, beyond what is currently specified in RSS-192 and SRSP-520, to further address coexistence between these flexible use and WBS systems? If so, what should they be? How many flexible use frequency blocks (or MHz) immediately adjacent to the 3650-3700MHz band could potentially affect WBS systems? How would these requirements impact the deployment of flexible use stations?**

116. The coexistence guidelines found in SRSP-520 and RSS-192 are sufficient, and no further measures should be necessary.

### **10.3 Coexistence between flexible use systems and licensed or authorized FSS earth stations**

**Adjacent band****Q46**

**Until the transition deadline, in all areas for flexible use in the 3650-3700 MHz band:**

**ISED is seeking comments on the proposal that until the transition deadline, those flexible use licensees deploying stations in 3650-3700 MHz within 25 km of a licensed FSS earth station (not including interim FSS authorization) in the 3700-4200 MHz band will be required to coordinate with the operators in these earth stations.**

117. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Adjacent band****Q47**

**After the transition deadline, in all areas for flexible use in the 3450-3650 MHz band:**

**ISED is seeking comments on its proposal that the current SRSP-520 coexistence requirements for flexible use operations in the 3450-3650 MHz band to protect FSS operations in the adjacent band 3700-4200 MHz be removed.**

118. SaskTel believes that after the FSS transition deadline the coexistence requirements between flexible use systems in the 3450-3650 MHz band and FSS stations in the 3700-4200 MHz band found in SRSP-520 can be removed. SaskTel supports the comments of the RABC in response to this question.

**Adjacent band**

**Q48**

For FSS earth stations licensed in the 4000-4200 MHz band and flexible use in the 3800 MHz band, in all areas:

ISED is seeking comments on adjacent band coexistence measures, taking into account the coexistence measures adopted by the EU (i.e. a stringent OOB limit) and the U.S. (i.e. a combination of guard band, a typical OOB limit, pfd limits, and baseline minimum filter specifications for earth station operations) and the current Canadian requirements (i.e. a typical OOB limit and coordination distance):

- a) What are the benefits and technical limitations associated with the above coexistence measures?
- b) Which set of coexistence measures above (i.e. EU, U.S., Canada) is preferred? If applicable, comments are sought on the values of the limits in relation to the supported measures.
- c) Given the proposal in section 9.1 to displace WBS in 3650-3700 MHz and identify 3900-3980 MHz for shared use, are there any additional considerations that may impact the response to a) and b) above?
- d) Which portion of the 3800 MHz band should the above measures be applied to in order to protect FSS in the 4000-4200 MHz band (i.e. how many frequency blocks or MHz)?

119. SaskTel supports the comments of the RABC in response to these questions.

**Co-channel**

**Q49**

ISED is seeking comments on what technical requirements should be imposed to ensure co-channel protection of FSS earth stations from flexible use systems, in the relevant scenarios and timeline as stated in sections 9.5 and 9.6. For example, could the pfd limit of -124 dBW/m<sup>2</sup>/MHz measured at the earth station antenna proposed by FCC above be used to protect co-channel FSS earth station? Alternatively, should other measures be adopted, such as a separation distance as described in section 7.3? Or should a combination of measures be adopted? If applicable, what are the specific values that should be adopted?

In providing comments to Q46-Q49, respondents are requested to consider the coordination burdens such coexistence and protection measures could impose on either flexible use services or FSS earth stations.

120. SaskTel supports the comments of the RABC in response to this question.

**Earth station technical parameters**

**Q50**

**ISED is seeking comments on whether the assumptions made by the FCC about earth stations, including baseline minimum filter specifications for earth station operations as stated above, are applicable to Canadian operations. Is there any additional information that ISED should consider in the development of appropriate technical rules to enable coexistence both co-channel and in adjacent bands?**

121. SaskTel supports the comments of the RABC in response to this question.

**10.4 Coexistence between flexible use systems and aeronautical radionavigation systems**

**Q51**

**ISED is seeking comments on its proposal to not implement any technical requirements for the coexistence between flexible use operation in the 3650-3980 MHz band and radionavigation operations in the 4200-4400 MHz band, noting the 220 MHz frequency separation between the bands of operation. If this is not sufficient for coexistence, what other measures would be appropriate?**

**In providing comments, respondents are requested to provide technical analysis to substantiate such proposals.**

122. SaskTel supports the comments of the RABC in response to this question.

123. The results of a study conducted by RTCA Inc. that assessed the potential impacts of interference from 5G systems in the 3.7-3.98 GHz band on radar altimeters operating in the 4.2-4.4 GHz range were recently released.<sup>11</sup> The study shows potentially serious interference can occur with radar altimeter operation despite the utilization of a 220 MHz guard band. The results of this study need to be studied further and validated, and any appropriate mitigation measures need to be investigated.

124. SaskTel agrees with the RABC in urging the Department to closely monitor developments on this issue in the United States to determine what, if any, additional interference mitigation measures will be required.

<sup>11</sup> “Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations” (RTCA Paper No. 200-20/PMC-2042) available here: [https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report\\_274-20-PMC-2073\\_accepted\\_changes.pdf](https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report_274-20-PMC-2073_accepted_changes.pdf)

**11. Licensing process for the new flexible use licences****Q52**

**ISED is seeking comments on the use of an auction as the licensing process for the flexible use spectrum that would be considered as the 3800 MHz band, noting a separate consultation process would be issued, if required, to determine the licensing framework for the range 3900-3980 MHz.**

125. SaskTel anticipates that there will be high demand for the flexible use licences being made available in the 3800 MHz band, and that demand will exceed supply. Therefore, SaskTel agrees with the ISED proposal to use a public spectrum auction licensing process to allocate and assign the 3800 MHz band flexible use licences, and SaskTel recommends that the 3800 MHz spectrum auction be administered by ISED.
126. SaskTel notes the Department is expecting the 3800 MHz spectrum auction to take place sometime in 2023, and that a future consultation will include auction rules and pro-competition measures for the auction, as well as more details such as conditions of licence.
127. In our response to Q19, SaskTel agrees that some form of shared licensing framework would be appropriate for the 3900-3980 MHz band, and expects the Department to issue a future consultation on the proposed shared licensing process for the 3900-3980 MHz band.

## 12. Proposed accelerated spectrum clearing approach

In providing comments for the following questions, respondents are requested to include supporting arguments and rationale, taking into consideration of ecosystems for 5G services and the adjacent WBS operations in the 3650-3700 MHz band.

### Q53

ISED is seeking general comments on the proposal submitted by Telesat found in annex H, including whether such an approach would be in the best interest of Canadians and more specifically, whether it would result in the faster deployment of 5G services in the affected frequencies; more efficient use of spectrum and what the implications of this repurposing plan would be for other users of the band.

128. SaskTel has reviewed the proposal submitted by Telesat to conduct a private sale of repurposed spectrum in the 3800 MHz band. Telesat has proposed a two-phase process to clear Fixed Satellite Service (FSS) spectrum in the 3700-3900 MHz and the 3900-4100 MHz ranges. Once the spectrum is cleared, it has been proposed by Telesat that the Department grant Telesat (at no charge) a nation-wide flexible use (Fixed and Mobile) licence for the cleared FSS satellite spectrum. Through private sales Telesat would then make this spectrum available to mobile wireless service providers, presumably to the highest bidder. Telesat would then utilize the funds raised by the sale of the spectrum licences to fund the large relocation costs incurred to clear the FSS spectrum.
129. Although SaskTel does recognize the high costs involved for both earth station owners and satellite operators in the transition process for FSS services in the 3800 MHz band, and notes that revenue from the proposed private sale of spectrum would fund the relocation costs, SaskTel recommends that ISED **deny** the Telesat proposal. SaskTel believes that a public spectrum auction administered by ISED will provide greater benefits to Canadians.
130. Spectrum is a public resource that must be managed appropriately, with direct oversight by a regulator. The 3800 MHz spectrum band is part of the “mid-band” spectrum that provides both good capacity and good coverage in dense urban areas. This band is also being developed by administrations globally to deliver 5G services, and a very rich global device ecosystem has and will continue to develop for the 3800 MHz band. The development of the 3800 MHz band in Canada is therefore critical for the delivery of new 5G services by Canadian



wireless service providers in response to exploding demand for connectivity, bandwidth, and more enhanced broadband services.

131. As with all spectrum, the 3800 MHz spectrum band is a public resource, and in particular the 3800 MHz spectrum band is far too valuable to the entire wireless industry to entrust licensee selection and the allocation of rights to the spectrum to a private sale process that both lacks transparency and is primarily motivated to maximize profit. Private spectrum sales are also not subject to any policies or procedures that would benefit the public interest such as pro-competitive measures and fair participation by all entities.
132. Private spectrum sales such as that proposed by Telesat involve private negotiations between the two parties and are inherently not transparent. For competitive reasons the final sale price for the spectrum is almost never publicly revealed, nor are any other relevant terms and conditions. This is in stark contrast to ISED-administered public spectrum auctions where all bidding information including final sale prices is publicly released.
133. In addition, for public spectrum auctions the entire spectrum auction process is transparent, with the open publication of all processes, rules, regulations, and other terms and conditions. Granted there is a great deal of secrecy regarding auction bidding and spectrum auction steps and progress before and during the actual auction process, the Department does publish all relevant information after the licensing process is complete and all licences have been issued.
134. With private spectrum sales motivated to maximize profit, there are no mechanisms, requirements, or incentives to promote or impose policies in the public interest. Government-led auctions are structured to ensure policies are followed that allow, for example, pro-competitive measures to be introduced that would “level the playing field” for smaller entities and new entrants. In previous public spectrum auctions, mechanisms such as spectrum caps and spectrum set-asides have been used to facilitate fair and equal access to spectrum for all potential bidders. It is simply not realistic to expect that private spectrum sales would include or be subject to pro-competitive policies and measures.

135. Adherence to any pro-competitive measures will almost certainly result in a reduction in spectrum sale revenues, which directly runs counter to the incentives for maximizing profit seeing that the spectrum sale proceeds are destined to fund the C-band transition.
136. Telesat has suggested in their proposal that ISED can impose pro-competitive measures when reviewing and approving after the fact the private spectrum transaction. As part of the normal process all spectrum transfers and subordinations must be approved by ISED, who conduct a detailed examination of the transaction to ensure compliance with all Departmental policies. This process usually takes several weeks, and often several months. Considering the number of transactions and entities that would be involved, SaskTel does not believe this process is workable. It would be very difficult and inefficient for ISED to reject a private spectrum sale such as that proposed by Telesat weeks or months later. The rejected transaction, and possibly other related transactions would have to then be re-visited. This would be a very time-consuming proposition. If this process could be made workable, it would at best be highly inefficient and time-consuming, although SaskTel believes this proposed process is unworkable.
137. SaskTel does not believe a private spectrum sale process would be in the public interest. In contrast a government-led spectrum auction would be driven by public interests and policies and would include fair participation by both large and small entities, far more competitive pricing through an open bidding process, and most importantly transparent allocation and assignment of this valuable public resource.
138. SaskTel notes that as part of the 3800 MHz spectrum clearing process in the United States, the C-Band Alliance (a group of C-band satellite operators) also submitted to the Federal Communications Commission (FCC) a proposal similar to the Telesat proposal that advocated private spectrum sales for repurposed 3800 MHz band spectrum, rather than a public auction process run by the FCC. The FCC rejected the C-Band Alliance proposal for private spectrum sales in favour of an FCC-administered government auction for many of the same reasons

as explained by SaskTel, including lack of transparency, oversight, and no accountability to adhere to policies in the public interest.<sup>12</sup>

139. SaskTel therefore recommends that a public spectrum auction licensing process be used for the 3800 MHz spectrum band, and that the Telesat proposal for private spectrum sales be **denied**.
140. Should the Department determine it is in the public interest to provide compensation to satellite and earth station operators for their relocation costs, SaskTel would recommend that this funding be taken from the proceeds of a government-led public spectrum auction, as done previously in the United States, and not funded through private spectrum sales.

**Q54**  
**ISED is seeking comments on whether the Telesat proposal meets ISED's policy objectives outlined in section 3, including:**  
**a) supporting rural/remote connectivity**

141. Traditionally a large proportion of rural and remote broadband deployments have been done by smaller wireless service providers and other entities. Telesat has proposed to use private spectrum sales to assign spectrum licences. With the lack of transparency, the focus on maximizing profit, and a lack of any mechanism to impose pro-competitive measures, private spectrum sales such as those proposed by Telesat would inherently disadvantage smaller wireless service providers with more constrained capital budgets for spectrum purchases.
142. Without pro-competitive measures in place and overseen by ISED such as in a public spectrum auction, SaskTel believes that smaller wireless service providers would have a much smaller likelihood of acquiring reasonable amounts of spectrum in a private spectrum sale process, if they were successful at acquiring any spectrum at all.
143. SaskTel believes that smaller wireless service providers that are focused on rural and remote broadband deployments would be disadvantaged under the Telesat

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<sup>12</sup> "FCC Report and Order and Order of Proposed Modification", FCC 20-22, Released March 3, 2020

proposal, and therefore overall rural and remote deployments and connectivity would be negatively impacted.

144. Accepting Telesat's proposal would therefore not be in alignment with ISED's policy objectives on supporting rural and remote connectivity.

**Q54**

**ISED is seeking comments on whether the Telesat proposal meets ISED's policy objectives outlined in section 3, including:**

**b) promoting competition in mobile services**

145. As explained in SaskTel's response to Q53, SaskTel believes that private spectrum sales such as those proposed by Telesat would favour the large wireless service providers with large capital budgets for spectrum purchases.
146. With private spectrum sales motivated to maximize profit, there are no mechanisms, requirements, or incentives to promote or impose policies in the public interest. Government-led auctions are structured to ensure policies are followed that allow, for example, pro-competitive measures to be introduced that would "level the playing field" for smaller entities and new entrants. In previous public spectrum auctions, mechanisms such as spectrum caps and spectrum set-asides have been used to facilitate fair and equal access to spectrum for all potential bidders. It is simply not realistic to expect that private spectrum sales would include or be subject to pro-competitive policies and measures.
147. Therefore, accepting Telesat's proposal would not be in alignment with ISED's policy objectives on promoting competition in mobile services.

**Q54**

**ISED is seeking comments on whether the Telesat proposal meets ISED's policy objectives outlined in section 3, including:**

**c) making more mid-band spectrum available to support 5G services**

148. In the Consultation ISED has proposed to make the 3650-3980 MHz band available for flexible use licensing, including both auctioned and shared licensed spectrum, for a total of 330 MHz which can all be used to support 5G services.

149. The Telesat proposal offers to clear additional FSS spectrum, from 3700 MHz up to 4100 MHz. By including the 3650-3700 MHz band, and allowing for a 20 MHz guard band from 4080 to 4100 MHz, a total of 430 MHz of mid-band spectrum could be made available, although there are potentially very serious issues in potentially utilizing the additional 100 MHz of spectrum from 3980 to 4080 MHz.
150. Utilizing the 3980 to 4080 MHz band for flexible use systems is not in alignment with the United States. In the US the flexible use systems will be in the 3700 – 3980 MHz band only, identical to the band plan proposed by ISED in this consultation. The band n77 ecosystem being developed for North America will be based on usage in the United States and the US band plan due to the much larger size of the American market. SaskTel believes there will be little or no 3GPP equipment available in the North American market that can operate in the 3980 to 4080 MHz band proposed by Telesat because the North American 3GPP device ecosystem will be based on the US band plan which only extends from 3700-3980 MHz.
151. By not being in alignment with the United States, there will be the potential for interference along the border between flexible use systems in Canada and FSS earth stations in the United States, assuming that operator can find equipment of course that can operate in the 3980-4080 MHz band.
152. The most potentially serious issue with extending flexible use systems up to 4080 MHz is the almost certain likelihood of increased interference issues with radio altimeters operating in the 4200-4400 MHz range. As explained in the SaskTel and RABC responses to Q51, the RTCA has conducted a study of the possible interference into radar altimeters from proposed 5G flexible use systems operating up to 3980 MHz providing a 220 MHz guard band.<sup>13</sup> The recently released study results showed the potential for serious interference with a 220 MHz guard band.<sup>14</sup> Using the additional spectrum for 5G systems up to 4080

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<sup>13</sup> “Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations” (RTCA Paper No. 200-20/PMC-2042) available here: [https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report\\_274-20-PMC-2073\\_accepted\\_changes.pdf](https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report_274-20-PMC-2073_accepted_changes.pdf)

<sup>14</sup> As explained in our response to Q51, the results of the RTCA study should be validated, and appropriate mitigation measures using a guard band of 220 MHz need to be identified.

MHz as proposed by Telesat would reduce the 220 MHz guard band down to 120 MHz. The reduced guard would further increase the magnitude and severity of the potential interference, and further studies and investigations will be required to quantify the impact on radar altimeters of using a 120 MHz guard band.

153. Therefore, although accepting Telesat's proposal would allow more mid-spectrum to be repurposed from FSS to flexible use systems, the likelihood of being able to use the spectrum from 3980 to 4080 MHz is very low because of a lack of a 3GPP North American equipment ecosystem covering this frequency range and the increased potential for very serious interference into radar altimeters in the adjacent band due to the reduced guard band.

**Q55**

**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- a) the proposal for maintaining the primary allocation for FSS in the 3700-4200 MHz band**

154. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal we do not anticipate any need to change the primary allocation of FSS in the 3700-4200 MHz band.

**Q55**

**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- b) the proposed implementation of an exemption to transition for satellite-dependent communities and the proposed changes to satellite licenses to apply it**

155. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal we do not anticipate any need to change the proposals for exemptions to transition for satellite-dependent communities.

**Q55**

**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- c) the proposal for treatment of WBS incumbents**

156. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal it is assumed that the Department would designate the 4000-4080 MHz band as shared use licensing, and would be the band for moving WBS incumbents under Option 2.
157. Utilizing the 4000-4080 MHz band for flexible use systems is not in alignment with the United States. In the US the flexible use systems will be in the 3700 – 3980 MHz band only, identical to the band plan proposed by ISED in this consultation. The band n77 ecosystem being developed for North America will be based on usage in the United States and the US band plan due to the much larger size of the American market. SaskTel believes there will be little or no 3GPP equipment available in the North American market that can operate in the 3980 to 4080 MHz band proposed by Telesat because the North American 3GPP device ecosystem will be based on the US band plan which only extends from 3700-3980 MHz.
158. The lack of readily available equipment could be a serious challenge for operators in the 4000-4080 MHz band.

**Q55**  
**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- d) the proposal to issue interim authorizations for certain existing licence-exempt earth stations in the 3700-4200 MHz band**

159. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal we do not anticipate any need to change the proposal to issue interim authorizations for certain existing licence exempt earth stations in the 3700-4200 MHz band.

**Q55**  
**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- e) technical considerations for coexistence between FSS and flexible use**

160. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal the same technical rules for coexistence between FSS and flexible use systems can be applied. The methodology will not

change with the change in the frequencies for the band edges for FSS and flexible use systems.

**Q55**

**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- f) technical considerations for coexistence between FSS and aeronautical radionavigation systems**

161. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal the guard band between flexible use systems operating up to 4080 MHz and radar altimeters in the 4200-4400 MHz band will be reduced from 220 MHz to 120 MHz.

162. As explained in the RABC and SaskTel responses to Q51, the potential for serious interference between flexible use systems and radar altimeters in the 4.2-4.4 GHz band with a guard band of 220 MHz has been identified. The reduced guard band would further increase the magnitude and severity of the potential interference, and further studies and investigations will be required to quantify the impacts of using a 120 MHz guard band.

**Q55**

**ISED is seeking comments on what elements from sections 7 to 10 of this consultation would still apply or need to change if ISED were to implement the Telesat proposal, in particular:**

- g) the overall impact on existing users in the 3700-4200 MHz band**

163. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q56**

**If ISED were to implement the Telesat proposal, ISED would need to consider the licensing framework for the 3700-3900 MHz band. Thus, ISED is seeking comments on:**

- a) whether it should, as proposed by Telesat, issue flexible licences in the 3700-3900 MHz band using the same conditions of licence as those contained in annex H of the 3500 MHz Framework, noting that some conditions may need to be adjusted to reflect the differences in the two bands and the decisions resulting from this consultation process**



164. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal then SaskTel suggests that the Department could use Annex H of the 3500 MHz Framework as the basis for conditions of licence for flexible use licences issued in the 3700-3900 MHz band. Modifications to the conditions of licence from Annex H of the 3500 MHz Framework will very likely be required to address the differences in the 3500 MHz and 3800 MHz bands, and to reflect the decisions resulting from the 3800 MHz consultation process.

**Q56**

**If ISED were to implement the Telesat proposal, ISED would need to consider the licensing framework for the 3700-3900 MHz band. Thus, ISED is seeking comments on:**

- b) whether it should issue a single Tier 1 flexible use licence as proposed by Telesat or align with the 3500 MHz band and issue Tier 4 licences**

165. SaskTel recommends that the Telesat proposal be denied. However, should the Department accept the Telesat proposal then SaskTel recommends that the Department should issue Tier 4 spectrum licences that will align with the Tier 4 licences in the 3500 MHz band.

**Q56**

**If ISED were to implement the Telesat proposal, ISED would need to consider the licensing framework for the 3700-3900 MHz band. Thus, ISED is seeking comments on:**

- c) what deployment conditions should apply to these licences including Telesat's proposal that the deployment requirements would only come into force after the Minister approves a transfer**

166. SaskTel recommends that the Telesat proposal be denied.

167. Telesat in their proposal state the deployment requirements for both the 3500 MHz and 3800 MHz bands should be harmonized. We disagree.

168. Although the deployment requirements can be similar in terms of required population coverage over a given time period, the deadlines for the deployment requirements for the 3500 MHz and 3800 MHz bands cannot be the same. This is because of the difference in expected licence issue dates for the two bands.

169. With the 3500 MHz spectrum auction planned to begin in June 2021, it is reasonable to expect the 3500 MHz spectrum licences to be issued to the auction winners sometime in 2021. The planned time frame for the 3800 MHz spectrum auction is 2023.
170. Therefore, deployment requirements for the 3500 MHz and 3800 MHz bands must be based on initial licence issuance date, i.e. sometime in 2021 for 3500 MHz spectrum licences, and possibly sometime in 2023 for 3800 MHz spectrum licences.

**Q56**

**If ISED were to implement the Telesat proposal, ISED would need to consider the licensing framework for the 3700-3900 MHz band. Thus, ISED is seeking comments on:**

- d) any additional conditions of licence that should apply given the nature of the proposal**

171. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q57**

**In its proposal, Telesat indicates that it takes no position on ISED imposing a pro-competitive measure such as a spectrum cap or set-aside on the 3700-3900 MHz licences. ISED would review any request for transfer in accordance with provisions related to commercial mobile spectrum through section 5.6 of CPC-2-1-23, Licensing Procedure for Spectrum Licences for Terrestrial Services. However, ISED would also consider the competitive implications on the 3500 MHz and 3800 MHz bands and consider pro-competitive measures in accordance with the Framework for Spectrum Auctions in Canada. As such, ISED is seeking comments on:**

- a) the need for a pro-competitive measure (e.g. spectrum cap or set-aside)  
b) the type of competitive measure that should be applied  
c) the amount of spectrum that should be considered under any such competitive measure**

172. The competitive implications of the 3500 MHz and 3800 MHz bands are similar. It is expected that demand will be high for the spectrum in the auctions for both bands, with a similar list of bidders for each auction. In order to level the playing field for smaller regional operators and support a fourth operator in wireless markets, and leverage the benefits of fair competition pro-competitive measures

will be required in the 3800 MHz band, similar to the requirement for such measures in the 3500 MHz band.

173. In the 3500 MHz band a set-aside amount of 50 MHz has been established by the Department. A spectrum cap has not been imposed in the 3500 MHz band. Decisions on pro-competitive measures for the 3500 MHz band were announced in March 2020 with the release of the 3500 MHz Policy and Licensing Framework. Since that time the Canadian the wireless industry has not significantly changed.
174. Because the 3500 MHz and 3800 MHz bands are similar, except for the amount of spectrum being offered for auction, and the wireless industry has not changed since the last review by the Department, it is reasonable to employ similar pro-competitive measures in both bands. Therefore, SaskTel recommends that a spectrum set-aside be employed for the 3800 MHz band for bidding by those entities that are not large wireless service providers.
175. With a minimum of 250 MHz of 3800 MHz spectrum being made available for auction, SaskTel believes that 100 MHz is a reasonable amount for a set-aside that would support a fourth carrier in wireless markets and allow the benefits of fair competition to be realized. Therefore, SaskTel recommends that 100 MHz of the 3800 MHz band be designated as set-aside spectrum.

**Q58**

**ISED is seeking comments on Telesat's proposals for the transition of FSS earth stations and whether any additional measures are required to ensure a smooth transition.**

176. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q59**

**Telesat's proposal includes ISED allocating an additional 80 MHz for flexible use in the 4000-4100 MHz band. ISED is seeking comments on the feasibility of making this extra spectrum available, specifically:**

- a) whether there would be standardized 5G equipment available for this 80 MHz, given that it does not align with the U.S. band plan**

177. Utilizing the 4000-4100 MHz band for flexible use systems is not in alignment with the United States. In the US the flexible use systems will be in the 3700 – 3980 MHz band only, identical to the band plan proposed by ISED in this consultation. The band n77 ecosystem being developed for North America will be based on usage in the United States and the US band plan due to the much larger size of the American market. SaskTel believes there will be little or no 3GPP equipment available in the North American market that can operate in the 3980 to 4080 MHz band proposed by Telesat because the North American 3GPP device ecosystem will be based on the US band plan which only extends from 3700-3980 MHz.
178. The lack of readily available equipment could be a serious challenge for operators in the 4000-4080 MHz band.

**Q59**

**Telesat’s proposal includes ISED allocating an additional 80 MHz for flexible use in the 4000-4100 MHz band. ISED is seeking comments on the feasibility of making this extra spectrum available, specifically:**

- b) whether there would be FSS filters available, given the reduced amount of FSS spectrum and that it would not align with the U.S. band plan**

179. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q59**

**Telesat’s proposal includes ISED allocating an additional 80 MHz for flexible use in the 4000-4100 MHz band. ISED is seeking comments on the feasibility of making this extra spectrum available, specifically:**

- c) whether there would be enough capacity to continue FSS services in Canada with the proposal to reduce the amount of FSS spectrum to 100 MHz**

180. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

**Q59**

**Telesat's proposal includes ISED allocating an additional 80 MHz for flexible use in the 4000-4100 MHz band. ISED is seeking comments on the feasibility of making this extra spectrum available, specifically:**

- d) to what degree would the requirement to protect U.S. FSS earth stations in the border areas have an impact on the ability to deploy flexible use stations near the border and to what degree would this impact the value of this spectrum**

181. SaskTel has no comment on this question. SaskTel reserves the right to submit comments or reply comments regarding this question during the reply comment phase of this consultation process.

## **CONCLUSION**

182. SaskTel has reviewed the Consultation with the Department's proposed Technical and Policy Framework for the 3800 MHz band. As a regional-based service provider, SaskTel has provided the Department input, suggestions, and recommendations on the questions raised in the Consultation.

183. SaskTel agrees with the ISED proposals to add a primary mobile service allocation in the 3700-4000 MHz band to the Canadian Table of Frequency Allocations, and the proposal to implement flexible use licensing allowing both fixed and mobile services in the 3650-4000 MHz band. This will enable the deployment of 5G technologies that leverages a 3GPP standardized equipment and device ecosystem that has developed globally in the 3800 MHz band.

184. SaskTel also agrees with proposals made by the Department that will allow for the transition of existing Fixed Satellite Services (FSS) services from the 3700-4000 MHz band into the 4000-4200 MHz band, enabling after transition the deployment of flexible use systems using 5G technology in the 3650-3980 MHz band.

185. The Department is proposing to move existing WBS systems from the 3650-3700 MHz band to the 3900-3980 MHz band. This will allow for the orderly transition to new technical rules for flexible use licensing allowing both fixed and mobile services and provide WBS systems access to 80 MHz of shared spectrum.

186. In response to the Department's request for preliminary comments on a future shared licensing process for the 3900-3980 MHz band, SaskTel has submitted to

the Department that a database approach to spectrum sharing should not be considered because this would require a customized solution for the Canadian market and therefore higher equipment costs.

187. SaskTel has provided input on technical considerations and coexistence requirements for the different services sharing the spectrum and operating in adjacent bands.
188. SaskTel recommends the use of a public spectrum auction licensing process to allocate and assign the 3800 MHz flexible use licences.
189. SaskTel is opposed to the Telesat proposal to utilize private spectrum sales to assign flexible use licences in the 3800 MHz band. The Telesat proposal would not be in the best interest of Canadians.
190. As with all spectrum, the 3800 MHz spectrum band is a public resource, and in particular the 3800 MHz spectrum band is far too valuable to the entire wireless industry to entrust licensee selection and the allocation of rights to the spectrum to a private sale process that both lacks transparency and is primarily motivated to maximize profit. Private spectrum sales are not subject to any policies or procedures that would benefit the public interest such as pro-competitive measures and fair participation by all entities.
191. In contrast a government-led spectrum auction would be driven by public interests and policies and would include fair participation by both large and small entities, far more competitive pricing through an open bidding process, and most importantly transparent allocation and assignment of this valuable public resource.
192. SaskTel therefore recommends that a public spectrum auction licensing process be used to allocate and assign the 3800 MHz flexible use licenses, and that the Telesat proposal for private spectrum sales be **denied**.
193. Should the Department determine it is in the public interest to provide compensation to satellite and earth station operators for their relocation costs, SaskTel would recommend that this funding be taken from the proceeds of a

government-led public spectrum auction, as done previously in the United States, and not funded through private spectrum sales.

194. It is expected that demand will exceed supply for the spectrum in the auctions for both the 3500 MHz and 3800 MHz bands, with a similar list of bidders for each auction. In order to level the playing field for smaller regional operators, pro-competitive measures will be required in the 3800 MHz band as they are required for the 3500 MHz band.
195. Due to the similarity of the two bands, SaskTel is recommending the use of set-aside spectrum in the 3800 MHz spectrum auction to promote competition. Based on the total minimum amount of 250 MHz of spectrum being auctions, SaskTel recommends a set-aside of 100 MHz for bidders that are not large wireless service providers.
196. SaskTel is pleased to have had the opportunity to provide our inputs and comments to the important issues raised in this Consultation and hopes that our submission will provide a fuller view of these issues to the Department.