Telesat

Reply Comments for

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

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TABLE OF CONTENTS

REPLY COMMENTS OF TELESAT

1 Telesat is pleased to offer these reply comments in 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, SLPB-002-20 (the "Consultation Document")[1] issued by Innovation, Science and Economic Development Canada ("ISED or the Department").

I. INTRODUCTION

2 Telesat thanks all of the participants for their thoughtful comments in response to the Consultation Document. Telesat has reviewed these comments thoroughly and carefully. While Telesat acknowledges and appreciates the strong support that many parties voiced in favour of Telesat's proposal that was included in the Consultation Document (the "Telesat Original Proposal"), it is also clear from the broad-based commentary that some details regarding the Telesat Original Proposal were conspicuous by their absence. Many respondents expressed a desire for additional clarity on key aspects of the Telesat Original Proposal, particularly the sale mechanics and the clearing process.

3 Telesat was initially reluctant to be overly prescriptive about matters where flexibility might be called for to accommodate the interests of others. However, Telesat acknowledges that it has an obligation to articulate a clear vision that inspires confidence that the Telesat Original Proposal (or an updated version thereof) will be successful, and that it would be in the best interest of Canadians. Telesat is keen to address respondents' understandable calls for more information and will do so in these reply comments.

4 At the same time, it is also clear that the Consultation Document has raised issues that go beyond Telesat's role in the transition and that Telesat's part in the overall process cannot be addressed in isolation. Thus, given the complicated and interrelated issues, Telesat is putting forward a revised proposal that addresses all aspects of the Consultation in order to present a complete, actionable solution that is in the best interest of all parties and, more importantly, all Canadians (the "Telesat Revised Proposal").

[1] Published in the *Canada Gazette*, Part I, September 12, 2020 [*Consultation Document*].

5 In crafting the Telesat Revised Proposal, Telesat took into account the following objectives and practical realities:

I. The substantial social and economic benefits to Canada of having significantly more mid-band spectrum available for 5G rollout:

- Without 3800 MHz spectrum, there will be at most 200 MHz of mid-band spectrum (less in some service areas) available for 5G rollout in Canada.

II. The necessity to proactively manage the transition of the fixed satellite services ("FSS") that today use 3800 MHz spectrum, at no cost to current C-band users and end users:

- The transition is complicated and it affects virtually all services reliant on 3800 MHz spectrum today, *e.g.*, the launch of 5G in urban areas can directly impact FSS services in satellite dependent communities; and
- Without investment in, and careful management of the transition process, when 5G goes up, the vital FSS services across all of Canada will go down.

III. The importance of optimizing the mid-band 5G band plan:

- In an ideal world, from the 5G perspective, all of the 5G mid-band spectrum would be sold, assigned, and cleared on the same timeframe;
- But the real world is not the ideal world. In the real world there are:
  - Three different sets of incumbent users in 3450–3650 MHz ("3500 MHz"), 3650–3700 MHz, and 3700–4200 MHz ("3800 MHz") that can only be transitioned to 5G on different timeframes; and
  - The impact on the 3800 MHz band in Canada associated with the clearing of the 3800 MHz band in the U.S.[2]
- Therefore, in the real world, there are trade-offs between:
  - Rolling out 5G in Canada on mid-band spectrum as soon as possible
    - No commentator advocated for delaying the rollout of 5G in Canada; and
  - Ensuring complete contiguity of carrier holdings in 5G
    - Based on the Department's proposal articulated in the Consultation Document (the "ISED Proposal") and industry comments, it

[2] See, *e.g.*, comments of BCE Inc., para. 151.

appears that 3650–3700 MHz simply cannot be made available for 5G on the same timeframe as 3500 MHz and 3800 MHz.

- Thus, trying to achieve the "ideal" of addressing all of the potential 5G mid-band spectrum at the same time would mean delaying the rollout of 5G in Canada until 3650–3700 MHz can be addressed.

- This would be highly detrimental to Canada and counter to the policy objectives behind this consultation.

IV. The need to eliminate uncertainty to the greatest degree practicable:

- Given the scope and complexity of the issues addressed in the Consultation Document, there is a consistent theme in the comments to have a proposal that leaves as few issues as possible to be resolved at later dates.

6 In these reply comments, Telesat articulates a comprehensive revised proposal that attempts to address the key concerns raised by industry while still achieving the key policy objectives articulated in the Consultation Document to the greatest extent possible. Towards this end, the Telesat Revised Proposal incorporates some key elements of the ISED Proposal, with the goal of creating a best-of-breed solution.

7 To be clear, this does not mean that Telesat is any less willing to be flexible. While there are core elements of the Telesat Revised Proposal, which, in Telesat's view, are essential to a successful transition of the 3800 MHz band, there are other details where there may be more than one path to success. Telesat remains fully prepared to work with all interested parties to craft a workable solution, incorporating the core elements of the Telesat Revised Proposal that best meet the needs of all parties.

II. REVISED PROPOSAL – OVERVIEW

8 The core elements of both the Telesat Original Proposal and the Telesat Revised Proposal are:

a) 3700–3900 MHz (at a minimum) is transitioned to flexible use, made available to terrestrial wireless carriers, and cleared of FSS traffic on an accelerated basis, providing (together with 3500 MHz spectrum) 400 MHz of spectrum for the rollout of competitive, affordable 5G services on mid-band spectrum;

b) Telesat receives the proceeds from the auction of flexible use rights in 3700–3900 MHz spectrum in order to finance the considerable costs of achieving the transition, and will invest the net proceeds after covering those costs into new facilities and new satellites, including Telesat's advanced Low Earth Orbit (LEO) satellite constellation;
c) Telesat will commit to ensuring that all C-band users and end users receiving FSS services over 3800 MHz spectrum today will remain connected; and
d) Telesat will manage and bear the costs and risks of the clearing process.

9 These are the fundamental, essential building blocks for a timely and successful transition of the 3800 MHz band to flexible use that will also preserve the continuity of critical services. That said, the Consultation Document, and the responses to it, have raised a number of issues that suggest opportunities to improve upon the Telesat Original Proposal. Telesat's goal has always been to find an optimal solution for all involved parties.

10 After carefully considering the ISED Proposal and the comments of the respondents, Telesat accepts that closer alignment to the U.S. clearing plan simplifies the transition process.[3] Accordingly, while Telesat remains fully committed to clearing and returning the 4000–4100 MHz band to ISED in the future, if ISED determines it would be desirable for Telesat to do so, this revised proposal is focused on clearing the 3700–4000 MHz band on a time-frame that is consistent with the Federal Communications Commission (FCC)'s accelerated clearing time-frame (notwithstanding the fact that the U.S. process has been underway since 2017, providing a significantly longer effective clearing period than will be available in Canada). Furthermore, Telesat also accepts that it will be helpful to continue to protect the full 500 MHz for FSS use in satellite-dependent areas, although Telesat does have some additional thoughts on how these should be defined, set out below, in order to minimize the areas where 3800 MHz spectrum is not available for 5G.

11 Telesat also recognizes that it is critical to have a fair and transparent sale process for the spectrum Telesat is permitted to make available to wireless users and that such a process is

[3] See, *e.g.*, comments of Shaw Communications Inc., paras. 31, 125; Rogers Communications Canada Inc., paras. 64, 276-277; SaskTel, para. 151; Bragg Communications Inc. operating as Eastlink, para. 17.

conducted consistent with ISED's policy objectives, a point many commenters justifiably raised.[4] Therefore, Telesat is proposing that the sale of 3700–3900 MHz mirror the 3500 MHz auction process to the greatest degree possible.

12 Telesat also provides greater detail on the clearing process and its commitment to users of 3700–4200 MHz and the end users that receive those services.

13 Finally, Telesat proposes that ISED include these commitments in Telesat's existing license conditions so that all parties have the assurance that the Minister will have the greatest possible range of enforcement mechanisms available should Telesat ever fail to deliver on these commitments.

III. THE TELESAT PLAN REMAINS THE ONLY VIABLE PATH TO SUCCESS

14 Some respondents have questioned whether Telesat's active participation is actually required to clear 3800 MHz spectrum while maintaining the FSS services using this spectrum. But the fact remains that no one has proposed a practical alternative that would achieve the same outcome: 3800 MHz spectrum available for 5G on an accelerated timeline, while maintaining all the essential services that are currently provided over that spectrum.

15 Some respondents have noted that Telesat will receive some funding under the U.S. process. This is true. However, setting aside the fact under 3% of the total funding under that process will accrue to Telesat (and the fact that Telesat's two largest competitors will receive approximately C$16 Billion), this funding is for work that Telesat must do in the U.S. under that clearing plan. None of Telesat's Canadian services are covered by that plan, and none of them will be cleared as a result of the U.S. process. The only significant impact of the U.S. clearing process on Canada is that U.S. origin video signals will be moved into the 4000–4200 MHz band. The antennas that receive those signals in Canada will still need filters installed to prevent interference from 5G services in the 3700–3980 MHz band. And that is the simplest part of the Canadian transition process.

[4] See, *e.g.*, comments of BCE Inc., para. 130; Cogeco Communications Inc., para. 95; Rogers Communications Canada Inc., para. 280; SaskTel, paras. 132-133; Xplornet Communications Inc., para. 63.

16 The real work is to clear all the vital Canadian services utilizing 3800 MHz spectrum today – including Canada's backbone infrastructure for rural and remote broadband connectivity, the Department of National Defence (DND)'s North Warning System and the monitoring and control of critical hydroelectric infrastructure – while simultaneously maintaining and protecting these services throughout the clearing process. Appendix I provides a detailed overview of the activities required to clear this spectrum while maintaining the vital services that are provided on it, as well as Telesat's commitments to users of C-band that Telesat will undertake the clearing at no cost to them.

17 The simple fact is that the U.S. clearing process does not address, and will not advance, the clearing of Canadian services. And, importantly, the bedrock of the U.S. plan, which is substantively equivalent to the Telesat Revised Proposal, is the payment of approximately C$17 Billion[5] to the satellite operators. Furthermore, the U.S. process began three years ago, in 2017, giving satellite operators far more time to prepare to implement the clearing process.

18 Some respondents suggest that the mechanism set out in the Telesat Original Proposal is unprecedented. As Telesat noted in its initial comments, this is simply not the case.

19 The reality is that spectrum incumbents have frequently received spectrum rights during previous spectrum reallocations that they have subsequently monetized in the secondary market. For example, through a series of decisions, TerreStar Solutions Inc. was permitted to add Ancillary Terrestrial Component (ATC) spectrum in the AWS-4 band to its MSS authorization, much of which has subsequently been subordinated (with ISED approval) to TELUS and Xplornet for independent terrestrial use. Similarly, Multipoint Distribution Systems (MDS) licensees in the 2500 MHz band were permitted to convert their authorizations to the (significantly more valuable) Broadband Radio Service (BRS) (surrendering 1/3 of the authorized spectrum in the process). At least one such MDS licensee, Craig Wireless, exercised that right in 2008 and later conveyed its converted BRS holdings to Inukshuk.[6] Most recently,

[5] This figure has decreased since Telesat's prior submissions due to a slight decrease in forecast clearing costs—the US$9.7 Billion of Accelerated Relocation Payments remains unchanged—and a strengthened Canadian dollar.

[6] Letter to Craig Wireless British Columbia Inc. regarding the conversion of its MDS authorization to a Broadband Radio Service (BRS) licence, November 24, 2008 online at https://www.ic.gc.ca/eic/site/smt-

the Department's decision on 3500 MHz expressly states that incumbents who receive flexible use licences prior to the 3500 MHz auction are entitled to transfer those rights.[7] The Telesat Revised Proposal may be different in scale, but it is not conceptually different.

20 On the contrary, it is the fundamental reallocation of spectrum relied upon by millions of Canadians that would be unprecedented. The only spectrum reallocation on a scale comparable to the proposed reallocation of the 3800 MHz band would be the reallocation of broadcasting spectrum in the 600/700 MHz range, in which case the spectrum had not been relied upon for commercial use for well over a decade. For example, regarding 600 MHz: the CRTC noted in 2014 that "given the high subscription rates to cable and satellite providers in most markets, few Canadians rely on television signals over the air."[8] Notwithstanding this lack of reliance, the Department still required the new 600 MHz band plan to ensure available channels for all regular power TV stations in Canada, and the Department did not auction the spectrum until 2019, five years later. Furthermore, Corus notes that this transition is still not fully complete, and will continue until at least 2022, extending the full timeline by another three years.[9]

21 Perhaps Canadians can tolerate a comparable delay for competitive deployments of 5G services. But that does not align with the policy objectives articulated in the Consultation Document:

- foster investment and the evolution of wireless networks by enabling the development of high quality 5G networks and technology
- support sustained competition in the provision of wireless services so that all consumers and businesses benefit from greater choice and competitive prices

gst.nsf/eng/sf09165.html; Cision, "Craig Wireless Systems Ltd. Announces Sale of Canadian Spectrum for $80 Million" (Mar 26, 2010), online at https://www.newswire.ca/news-releases/craig-wireless-systems-ltd-announces-sale-of-canadian-spectrum-for-80million-539667282.html.

[7] Decision on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Decisions on Changes to the 3800 MHz Band, SLPB-001-19, para. 101.

[8] Consultation on Repurposing the 600 MHz Band, December 18, 2014, para. 13.

[9] Submissions of Corus Entertainment Inc. in response to Q50.

- facilitate the deployment and timely availability of services across the country, including in rural, remote, and Northern regions.[10]

22 The Minister has the authority to order Telesat (and the other FSS operators) to stop using the 3700–4000 MHz band in Canada. That, by itself, will not preserve the existing services. Without substantial effort and investment, the actual result would be that the existing FSS services that CBC, Corus, DND, SSi Canada, ViacomCBS, NABA and others have stated they rely upon, and expect to continue to rely upon, will cease. Loss of critical services to Canadians would clearly not serve the Department's policy objectives.

23 As some respondents have noted, the Spectrum Policy Framework for Canada includes a statement that "any displaced spectrum users will be responsible for all costs incurred as a result of any reallocation of spectrum by the Department."[11] The Department is free to change its policies. But it is precisely to fit within this policy that Telesat has crafted a solution that allows for spectrum users to fund the transition directly. Telesat is not asking for the Department to fund this transition with public money.

24 In any case, to the extent the Telesat Revised Proposal requires any departure from prior practices, we would note that there are numerous fundamental differences between terrestrial wireless and satellite spectrum. Canadian wireless operators only compete against other Canadian operators, all of whom get their spectrum rights from ISED. Telesat competes both within and outside of Canada against international competitors who acquire their spectrum rights from foreign administrations. In this context, it is critical to take into account the approximately C$16 Billion (or nearly 95% of the total funding available to all satellite operators) that Telesat's two largest competitors are receiving in the U.S. process for clearing precisely the same spectrum that ISED seeks to clear in this consultation. In anticipation of the receipt of those substantial amounts, Telesat's much larger competitors are already making investments in new capabilities that will compete with Telesat both in Canada and the rest of the world. In short,

[10] Consultation Document, para. 13.

[11] See *e.g.* comments of Xplornet Communications Inc., para. 66, citing Spectrum Policy Framework for Canada at 8.

there is ample justification for ISED to take a different approach to satellite spectrum repurposing than it does for terrestrial spectrum repurposing.

25 But there is no conflict between the Telesat Revised Proposal and the Department's existing policies. As pointed out by BCE and others, the proposal "would meet the Department's policy objectives and maximize benefits to Canadians" and "also satisfies a number of the enabling guidelines of the Spectrum Policy Framework for Canada".[12]

26 Moreover, as discussed in more detail in the balance of these reply comments, the Telesat Revised Proposal expands on the Telesat Original Proposal, with binding commitments to transparency and accountability, with appropriate oversight roles for the Department, to ensure that these objectives will be achieved.

IV. 3800 MHZ BAND PLAN

A. FUTURE ALLOCATION OF 3700-4200 MHZ

27 As noted above, upon consideration of the comments submitted in response to the Consultation Document, the majority align with the Department's proposal to clear 3700–4000 MHz for flexible use and to retain 4000–4200 MHz for FSS use, in each case outside of satellite-dependent areas, where 3700–4200 MHz would remain for FSS use as discussed in the next section.

28 The respondents have largely agreed that the optimal timing for this process would align to the 3500 MHz auction and the FCC's clearing plan for the 3800 MHz band in the U.S. Telesat accepts these conclusions. Therefore, the Telesat Revised Proposal for the re-allocation of the 3800 MHz spectrum is as follows.

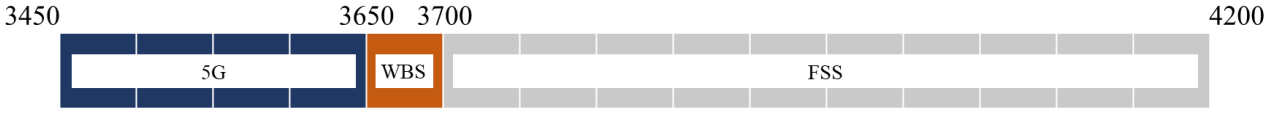
- 120 MHz, which includes a 20 MHz guard band (3700–3820 MHz), would be cleared outside of satellite-dependent areas on the same timeline as the 3500 MHz clearing process. This would align generally with the FCC's Phase I accelerated timeline.

[12] Comments of BCE Inc., paras. 106-116. Similarly, see comments of TekSavvy Solutions Inc., para. A54.

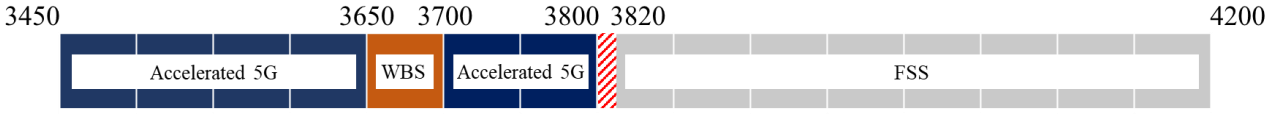
- A further 180 MHz (3820–4000 MHz) would be cleared outside of satellite-dependent areas on the FCC Phase II accelerated timeline, *i.e.*, by December, 2023. This would result in a total of 280 MHz of incremental mid-band spectrum available for flexible use, plus a 20 MHz guard band, by the end of 2023.
- 4000–4200 MHz would continue to be protected for FSS use throughout Canada, with the full 3700–4200 MHz band being protected for FSS in satellite-dependent areas and at two gateway sites, discussed below.
- Telesat remains committed to also clearing the 4000–4100 MHz band in the future, should ISED determine that this would be desirable.
- Consistent with the Telesat Original Proposal, Telesat would conduct and receive the proceeds of an open and transparent auction process (described in more detail in Section V of these reply comments) for 200 MHz (3700–3900 MHz) of the cleared spectrum.
- Interim assignments would be made in the 3500 MHz and 3700–3800 MHz bands, to remain in effect until the effective date of ISED's final combined assignment round, as discussed below.

29 The following diagram shows the band plan described above[13]:

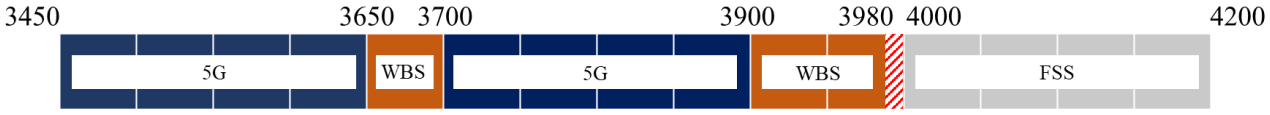
Current band plan



Phase 1 clearing timeline (same as 3500 MHz)



Phase 2 clearing timeline (December 2023)



[13] The treatment of WBS is addressed in paragraphs 37 to 39 below.

B. SATELLITE-DEPENDENT AREAS

30 Continuity of existing services is a fundamental goal of the Telesat Proposal. Telesat has always acknowledged that some areas of the country - particularly in the North - do not have access to the same terrestrial services that are available in the more densely-populated South. Serving these communities is a core element of Telesat's mission and was one of the main reasons Telesat was established by the Government of Canada as the world's first domestic satellite operator in 1969.

31 The respondents seem to be generally aligned with the Department's proposal that the full 3700–4200 MHz band should be retained for FSS in satellite-dependent areas of the country. Telesat has no objection to this. However, the submissions demonstrate less alignment on precisely how the satellite-dependent areas should be defined. Some respondents note that some of the communities that would be included in ISED's proposed definition have access to terrestrial connectivity today.[14]

32 Telesat agrees that ISED's proposed definition of satellite-dependent areas based on Tier 4 licence areas may be over-inclusive and may unnecessarily inhibit deployment of terrestrial wireless services in some communities.

33 Telesat suggests that a slightly narrower definition would be equally effective. In particular, Telesat believes that a suitable definition could be based on latitude thresholds that would vary from province to province:

- in British Columbia, Saskatchewan and Manitoba, above the 55th parallel;
- in Alberta, above the 57th parallel; and
- in all other impacted provinces, above the 50th parallel.

34 This approach is both simple and easy to implement, captures all satellite dependent communities, and (based on the comments) does not capture areas currently targeted for 5G rollout.

[14] See, for example, comments of Rogers Communications Canada Inc., para. 171; comments of TELUS Communications Inc., para. 104.

35 The Territories are above each of these thresholds and would be designated as satellite-dependent in their entirety. A map showing the resulting designations appears as *Figure 1*.

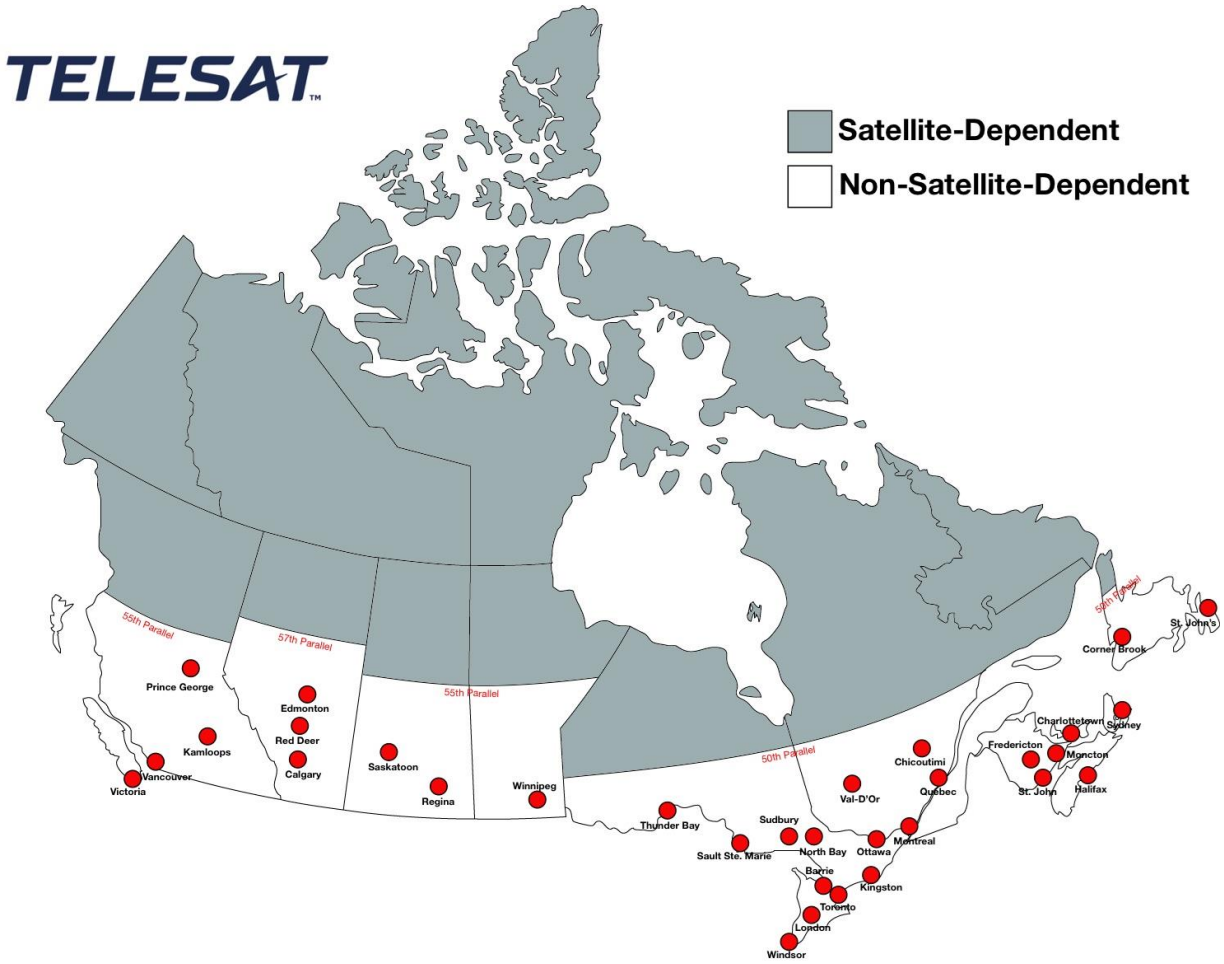


Figure 1- Proposed Satellite-Dependent Areas

36 Telesat also agrees with respondents such as Ericsson that connectivity options and needs will evolve over time.[15] Telesat recommends that ISED periodically review the definition of satellite-dependent areas to ensure that it remains appropriate.

[15] See comments of Ericsson Canada Inc., response to Q8.

C. WBS

37 Telesat recognizes the benefit of bringing the entire 3450–3900 MHz band to market at one time, since this would provide the easiest path to maximizing contiguity and avoiding undesirable fragmentation. Based on the ISED Proposal and industry comments, it seems a relocation of WBS from 3650–3700 MHz to the 3900–3980 MHz band[16] and the use of that band as ISED described is both achievable and supports vital public policy objectives. However, Telesat notes that the Department has indicated that the band rules, the transition timeline, and the ultimate disposition of the band would need to be determined in order to effectuate the transfer of existing services out of the band.

38 Given all of the issues that would need to be addressed, it simply does not appear to be feasible to auction the 3650–3700 MHz spectrum in the same timeframe as 3500 MHz and 3800 MHz. Furthermore, delaying the 3500 MHz and 3800 MHz sale processes in order to include the additional 50 MHz of WBS spectrum would be at odds with the important goal of accelerating the roll-out of advanced 5G services. The submissions to this proceeding suggest that terrestrial carriers will be able to aggregate non-contiguous blocks for efficient and cost-effective deployments, provided they are within the instantaneous bandwidth of the 5G radios.[17] The massive economic benefit from accelerated launch of 5G services in Canada with adequate mid-band spectrum far outweighs the limited practical benefit of marginally better contiguity.

39 Accordingly, while Telesat recommends that the Department continue its efforts to pursue a relocation of WBS to ultimately allow for a contiguous block of flexible use spectrum, this should not be done at the cost of delaying the release of the 3500 MHz band as planned and the 3800 MHz band as proposed.

[16] While Telesat's Revised Proposal assumes that WBS will move to 3900–3980 MHz, ISED's preferred solution, this is an example of an area where the core elements of Telesat's Revised Proposal could work equally well with a somewhat different implementation. A number of commentators have noted that WBS could potentially be moved to 3400–3450 MHz. If this were to occur, ISED could combine 3900–4000 MHz with Telesat's commitment to clear 4000–4100 MHz and, at the appropriate time, auction 3900–4080 MHz (leaving the required 20 MHz guard band) for flexible use.

[17] See comments of Rogers Communications Canada Inc., para. 20.

D. GATEWAYS

40 The Telesat Original Proposal indicated that the full 500 MHz of 3700–4200 MHz spectrum would need to remain protected for FSS at two protected gateway sites. Telesat had proposed its existing site at Allan Park, Ontario as one such site. No respondents have objected to this designation. Therefore, Telesat urges ISED to include protection of the Allan Park facility in its final plan for the 3800 MHz band.

41 Other respondents have noted the Weir, Quebec facility is also a suitable candidate site.[18] Telesat agrees that the Weir site would be a logical choice for the second protected gateway site outside of satellite-dependent areas.

V. TELESAT'S COMMITMENT TO AN OPEN AND TRANSPARENT AUCTION PROCESS OVERSEEN BY ISED

A. AUCTION PROCESS

42 Telesat proposes to conduct a 3800 MHz auction process that will mirror the Department's 3500 MHz auction process to the greatest extent possible. To that end, Telesat has engaged Power Auctions LLC, the same provider the Department has selected for the 3500 MHz process, to be available if ISED approves the Telesat Revised Proposal. Telesat proposes that it would use the same auction platform and software and the same procedures adopted by ISED for the 3500 MHz auction.

43 While Telesat fully expects that the Department will outline its policy direction for the auction of this spectrum in its final decision, Telesat proposes (subject to ISED's decision on the Consultation Document) that the Telesat auction of the 3700–3900 MHz band would be based on the same Tier 4 service areas and 10 MHz blocks and would adopt the same anti-collusion and joint bidding rules as ISED plans to use in the 3500 MHz auction. Assuming that ISED will want to see the same pro-competitive measures in the 3800 MHz as it recently provided for in 3500 MHz, to address the concerns raised by regional operators, Telesat would also propose to include a set-aside of 50 MHz within the 3800–3900 MHz band on the same terms set out by the

[18] See comments of Inmarsat Solutions (Canada) Inc., response to Q30.

Department for 3500 MHz allowing for 100 MHz of set aside mid-band spectrum for the regional operators across 3450-3650 and 3700-3900 MHz.[19] Telesat would simply adopt the Department's list of eligible bidders for the 3500 MHz auction, including the Department's determination of set-aside eligibility in each service area.

44 The main difference between the 3500 MHz auction and Telesat's proposed process for the 3800 MHz auction would be the requirement for contracts to be entered into between Telesat and the bidders prior to the auction process. Telesat will publish a proposed form of agreement in advance of the process.

45 Some respondents expressed concern that, as a private entity, Telesat might be motivated to manipulate the sale process, either for anti-competitive reasons or simply to enhance its own returns. That is not Telesat's motivation and the process that Telesat has set forth makes it impossible for Telesat to do any of this. Furthermore, Telesat recognizes and fully appreciates that this process will only be successful if bidders believe it will be conducted fairly, in accordance with the established rules.

46 Telesat would welcome an oversight role for ISED, as the Department may determine to be suitable.

47 By having ISED clearly articulate all expectations for the sale of this spectrum in its decision, by using the same auction provider as ISED, by mirroring the 3500 MHz auction rules to the greatest extent practicable, by publishing the auction rules, list of applicants and list of qualified bidders (pre-auction)[20] and the full bidding data (post-auction), and by allowing ISED to perform the oversight role that it deems appropriate, the 3800 MHz auction will be open and transparent, and conducted completely in alignment with ISED's public policy objectives.

[19] See, *e.g.*, comments of Cogeco Communications Inc., paras. 78, 103; Québecor Média inc., paras. 6, 98-99; Shaw Communications Inc., para. 42; TekSavvy Solutions Inc., para. 30.

[20] As Telesat is proposing that the eligible bidders for the 3800 MHz auction be the same as those in the 3500 MHz auction, the publication of the list of applicants and list of qualified bidders will happen when ISED does this for the 3500 MHz auction.

B. TIMING

48 As a result of the pre-allocations of some of the 3500 MHz spectrum to incumbents, the 3800 MHz auction will make substantially more spectrum available to bidders than the 3500 MHz auction. Therefore, it would be most efficient and strongly preferable for the 3800 MHz auction to take place prior to the 3500 MHz auction.

C. ASSIGNMENT ROUNDS

49 Respondents expressed a strong desire for a common assignment process for the 3500 MHz and 3800 MHz spectrum, to avoid or at least reduce fragmentation.[21] Telesat agrees that this would be beneficial.

50 Because 3450–3650 MHz and 3700–3800 MHz will be available for 5G deployment starting at the end of 2021, while 3800–3900 MHz will be available starting at the end of 2023, there needs to be an interim assignment for 3450–3650 MHz and 3700–3800 MHz and then a final assignment for all of 3450–3650 MHz and 3700–3900 MHz. This exactly mirrors the assignment process that the FCC is employing in the U.S., where there will be an interim assignment for 3700–3800 MHz and then a final assignment for 3700–3980 MHz.

51 As noted in the Introduction, Telesat has tried to balance maximizing spectrum contiguity with ensuring that 5G can be deployed on 3500 MHz and 3700–3900 MHz as soon as possible. As the 3800 MHz and 3500 MHz auctions would be occurring in close succession, ideally, there would be a single assignment round for 3450–3650 MHz and 3700–3800 MHz. But it does not appear practical to do this without delaying the 3500 MHz process. And no respondent has advocated a delay in the 3500 MHz auction; the benefits of keeping on schedule far outweigh the benefits of a single assignment round.[22] Accordingly, Telesat proposes that separate interim assignments be provided for 3500 MHz (assigned by ISED as planned in connection with the

[21] Comments of TELUS Communications Inc., paras. 196-199, 234; Comments of Rogers Communications Canada Inc., paras. 251-258.

[22] If Telesat is incorrect, and ISED could conduct an interim assignment for the combined blocks of 3450 – 3650 MHz and 3700 – 3800 MHz as part of the 3500 MHz auction without delaying that auction, Telesat would support such an approach.

3500 MHz auction) and 3700–3800 MHz (assigned by Telesat, through a parallel process operating under the same rules as the 3500 MHz auction).

52 The interim assignments would remain in effect until the clearing process for 3800–3900 MHz is complete (*i.e.*, December 2023). ISED would (prior to December 2023) conduct a final common assignment round within the combined blocks of 3450–3650 MHz and 3700–3900 MHz. As with the 3500 MHz auction rules, this final assignment round would include all flexible use licensees in the bands.[23]

D. SIMPLIFIED TRANSFER PROCESS

53 Many respondents noted that the requirement for Ministerial approval of transfers would complicate and add risk to any large-scale secondary market process. Telesat agrees.

54 As set out above, all of the participants in the proposed 3800 MHz auction would already have been deemed eligible by ISED as part of the 3500 MHz process. This should allow for a simplified approval process for the transfers. Telesat proposes that the Department adopt a policy that transfers of the 3800 MHz spectrum from Telesat to winning bidders would be conditionally pre-approved in each Tier 4 service area to the extent that the bidder was not acquiring over 100 MHz of 3800 MHz spectrum.[24] If the transfer exceeded 100 MHz of 3800 MHz in a Tier 4 service area, the amount of spectrum in excess of 100 MHz would require separate Ministerial approval, and would presumably be reviewed in accordance with existing policies for transfers of Commercial Mobile Spectrum.

[23] While Telesat's Revised Proposal assumes that 3650–3700 MHz will become available for 5G later than December 2023, this is another example of an area where the core elements of Telesat's Revised Proposal would work equally well with somewhat different implementations (cf., footnote 16.) If 3650 – 3700 MHz will become available for deployment at the same time as 3800 – 3900 MHz (December 2023), then it is likely to be beneficial for ISED to conduct a final assignment round prior to December 2023 for all of 3450 – 3900 MHz. Conversely, if 3650 – 3700 MHz will become available for deployment later than 3800 – 3900 MHz but it is deemed beneficial for ISED to conduct a final assignment round for all of 3450 – 3900 MHz, then Telesat could also make an interim assignment of 3800 – 3900 MHz that would apply until ISED's final assignment round is implemented.

[24] For the purposes of further clarity, any existing holdings of 3500 MHz spectrum would not count toward the 100 MHz pre-approval limit.

55 Telesat submits that a pre-approval model, with well-defined conditions, would go a long way towards giving all participants comfort that the transfers could be carried out efficiently, but without impairing ISED's ability to oversee compliance and alignment with its policy goals.

E. DISPOSITION OF UNSOLD SPECTRUM

56 Telesat proposes that the flexible use licence(s) issued to Telesat be subject to a condition of licence that Telesat's rights will terminate as of the target clearing date (*i.e.*, December 2023), unless it is transferred to an eligible licensee other than Telesat, or the Department agrees to (or requires) an extension. In the event that any of the spectrum remained unsold after the auction process, Telesat would be entitled to continue to market it until December 2023. Any spectrum not transferred by December 2023 would return to ISED. This would provide Telesat with a reasonable opportunity to find eligible buyers, but protect against any risk that the spectrum might remain unallocated. However, transferees who receive these spectrum rights via the secondary market should be entitled to (and should receive) the same licence terms that would be obtained through the 3500 MHz process.

VI. TELESAT'S COMMITMENT TO PROTECT EXISTING FSS USERS

57 The timely clearing of the 3700–4000 MHz band without disrupting existing essential services is absolutely fundamental: if the clearing fails, either the new flexible use licensees will not be able to deploy services, or existing satellite users will lose their services, or both. So it is no surprise that many respondents expressed strong interest in the details of how this will be accomplished.

58 Telesat is committed to a thorough and inclusive clearing process. While the clearing process will be simpler and less costly if fewer earth stations are included, Telesat has, in fact, advocated for a process that will expand the scope of its clearing obligations and give all earth stations a chance to be included. Thus, in its initial comments[25] Telesat proposed that ISED provide "an extended deadline for registration of licence-exempt earth stations."

[25] Comments of Telesat, para. 127.

59 Whatever approach ISED takes, once Telesat is provided with the list of all earth stations that will be covered by Telesat's clearing obligation,[26] Telesat will finalize the detailed clearing plan and provide it to the Department for review, and proposes that a version of that plan with confidential information redacted be made publicly available.

60 Provided that the core elements of the Telesat Revised Proposal are adopted, Telesat will carry out the clearing plan entirely at its own cost and will cooperate with the Department to enable whatever degree of oversight of the clearing process the Department considers appropriate.

61 Many responses to the Consultation Document, particularly those from current C-band FSS users, were generally consistent in calling on Telesat to provide more clarity on its commitment to protect continuity of existing services. This pledge is a central element of Telesat's plan, and it is entirely reasonable that FSS users would want clarity on precisely what protections Telesat is prepared to offer them. Accordingly, Telesat has set out in Appendix I the detailed commitments it will make to Canadian FSS C-band users if the core elements of the Telesat Revised Proposal are adopted.[27] Telesat will enter into binding contracts to confirm these commitments. This document also details the steps involved in the clearing process.

VII. TELESAT'S COMMITMENT TO THE FUTURE OF C-BAND

62 Despite suggestions from some respondents to the contrary, the responses to the Consultation demonstrate that demand for C-band FSS is strong and will remain strong.

- SSi Canada noted that "The C-band best enables users to enjoy a reasonable level of service for real-time communications, including voice and video calling."[28]

[26] For the purposes of clarity, all licensed earth stations would be covered.

[27] For the purposes of further clarity, this Commitment (as defined in Appendix 1) applies to all FSS users of 3800 MHz, and end users who receive those services, in Canada, irrespective of whether the service provider is Telesat (which is the case for the vast majority of Canadian origin services) or another satellite service provider. For further clarity, the Commitment applies to end users who receive U.S. origin video signals in Canada.

[28] Comments of SSi Canada, para. 34.

- Eutelsat reported "continuing demand for C-band FSS satellite services in remote areas" and concluded that "there should always be a place for C-band FSS services in Canada".[29] Inmarsat made similar comments.[30]
- Many broadcasters commented on the importance of C-band FSS to their distribution networks.[31] CBC/Radio-Canada noted that it has recently migrated some traffic from high-frequency Ku-Band distribution to C-band, for improved reliability.[32]

63 Some respondents referred to the CRTC's 2014 Satellite Inquiry Report, which includes a statement that "A significant amount of [Telesat's] C-band capacity remains available (unused)."[33] This report was issued over six years ago and the utilization of our C-band satellites has increased significantly since then. Commercial demand for C-band services remains strong.

64 Telesat notes that some respondents have included some incorrect details about the anticipated lifespan of Telesat's C-band satellites. In fact, as set out in Telesat's submissions, Telesat anticipates that all three of its current C-band satellites can continue to operate at least until 2026.[34] It is true that some of its current spectrum licences would expire before this date, but as expressly set out in Section 5.3 of CPC-2-6-02 — Licensing of Space Stations, in the ordinary course those licences are subject to a high expectation of renewal.

65 Let there be no doubt: Telesat has no intention to exit the C-band FSS market. Telesat expects and intends to continue to provide C-band FSS services throughout Canada for many years to come.

[29] Comments of Eutelsat S.A., para. A9.1.

[30] Comments of Inmarsat Solutions (Canada) Inc., response to Q9.

[31] See generally comments of NABA, ViacomCBS.

[32] Comments of CBC/Radio-Canada, response to Q9, p. 5.

[33] CRTC, Satellite Inquiry Report, October 2014, para. 63.

[34] As noted in footnote 15 of Telesat's initial comments, Anik F2 and F3 have fuel to maintain normal operation until 2026; Anik F1R can also continue until 2026 in inclined operations.

VIII. TELESAT'S COMMITMENT TO TRANSPARENCY

66 Some respondents raised concerns about a potential lack of transparency in a private sale process.[35] Telesat acknowledges that this may be true for most private spectrum sales, which occur on a fairly routine basis in Canada. However, as described above, Telesat is not proposing to conduct private negotiations, but rather a fully-transparent auction process, conducted with the same level of transparency and rigour as the Department's 3500 MHz auction, and using the same auction services provider (*i.e.*, Power Auctions), software, procedures and rules. Consequently, Telesat is willing to commit to follow the Department's standard protocol of making all clock round and assignment round bids and all final sale prices public following conclusion of the auction.[36]

67 Telesat's commitment to an open and transparent sale process stands in stark contrast to the secrecy that would characterize a conventional secondary market transaction and demonstrates the measures Telesat is prepared to undertake to ensure that its proposal serves the public interest, not just Telesat's private interest.

68 Telesat would also invite ISED oversight of how it conducts the auction and, moreover, how it spends the proceeds generated through this process. This commitment regarding use of proceeds would include two parts. First, Telesat would welcome a role for ISED to ensure Telesat makes good on its commitments to FSS users, as set out in Section VI. Second, Telesat would report to ISED on a regular basis on the progress of the clearing process, including on the aggregate amounts spent by Telesat in the process.

69 As noted above, Telesat will memorialize its commitments to FSS users, who would have rights of enforcement against Telesat under such agreements. The Department could also play a

[35] SaskTel's comments on this point are among the strongest: "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." (at para. 27)

[36] See, *e.g.*, Policy and Licensing Framework for Spectrum in the 3500 MHz Band, Annex C, para. 92, listing the information to be made publicly available following the conclusion of the 3500 MHz auction process.

role in documenting and/or resolving any disputes that might arise during the clearing process, as it has previously done in connection with interference complaints.

70 Beyond this, Telesat is also prepared to formalize its previous commitment to invest all net proceeds from this process exclusively into new facilities and satellites, including Telesat LEO.

71 In particular, Telesat will make a binding commitment (as discussed in more detail in Section IIX, below) that it will pay to the Receiver General for Canada any portion of the proceeds that have not been invested in new facilities and satellites, or investments otherwise acceptable to ISED, within a period of seven years after the conclusion of the sale process.

IX. TELESAT'S COMMITMENT TO ACCOUNTABILITY

72 Some commenters suggested that Telesat's commitments in its proposal were hollow or self-serving or, more charitably, are simply not enforceable.[37] Trust is a critical foundation for the success of the Telesat Revised Proposal. An enforcement mechanism to ensure that Telesat cannot resile from these commitments may help support such trust.

73 Telesat has described in Section VI how it will confirm its commitments to FSS users in order to make them binding and directly enforceable. However, that only covers some of the matters dealt with in this revised proposal. Thus, Telesat appreciates that a more general mechanism, ideally one subject to public oversight by the Minister, is needed.

74 The natural mechanism for a binding commitment under the *Radiocommunication Act* is a condition of licence. Telesat proposes that conditions requiring compliance with the commitments set out in Sections V - VIII of this revised proposal could be added to Telesat's existing spectrum authorizations for C-band FSS and its Non-Geostationary Orbit (NGSO) authorization. This would enable the full range of enforcement measures available to the Minister under the Act, potentially including licence revocation. Since Telesat depends on these

[37] See for example, the comments of CBC/Radio Canada in response to Q53.

licences to operate, this effectively amounts to pledging the future of Telesat's business in Canada as a security for its conduct.

X. OTHER TECHNICAL ISSUES

A. TECHNICAL RULES RE PROTECTION OF FSS

75 As stated in Sections VI and VII above, Telesat agrees that C-band FSS will continue to provide essential telecommunications services in Canada following the transition. As such, FSS earth stations operating in the 4000–4200 MHz band anywhere in Canada, and those operating in the 3700-4200 MHz band in satellite-dependent areas and at the gateway locations must be protected from harmful interference. Interference into earth stations could arise due to flexible use transmitter in-band or out-of-band emissions causing an increase in the earth station noise floor (reduction in C/I), or earth station receiver blocking (front-end overload).

76 As the Department has stated in the Consultation,[38] to ensure protection from harmful interference, measures relating to both the flexible use transmitters and the earth stations will be required. These include: in-band and out-of-band (OOBE) pfd limits, a guard band, earth station filtering and separation distance.[39] Telesat, as well as the majority of other commenters, supports the FCC approach to coexistence measures.[40]

77 In addition, Telesat, the RABC and several other commenters supported earth station filtering and adoption of the FCC filter mask in order to protect earth stations operating in the 4000-4200 MHz band outside satellite-dependent areas.

78 Commenters were, however, divided concerning the numerical pfd and guard band values that should be adopted. Several commenters noted that the situation in Canada following the transition will differ from that in the U.S. due to technical (*e.g.*, earth station elevation angles) and policy (*e.g.*, existence of satellite-dependent areas and gateways) differences. SES correctly

[38] Consultation Document at paras. 166-177.

[39] Comments of RABC, para. 80.

[40] Comments of RABC, paras. 82-83; BCE Inc., para. 100; Ecotel, para. 123; Eutelsat at 13; Intelsat at 33-34; Qualcomm at 12; Rogers, para. 234; SES at 30; Shaw, para. 117; TekSavvy at 23; Telus, para. 179; DND at 6; CanWISP at 26-27; PSBN Innovation Alliance, para. 140.

observed that filter specifications, guard band width, OOBE limits and maximum pfd limits are inter-related.

79 There was also no consensus on the mechanism to effect coordination, *e.g.*, whether a coordination trigger distance should be adopted, and if so the appropriate coordination distance, and how aggregate interference from multiple flexible use transmitters should be considered.

80 Several commenters suggested that these outstanding technical issues should be the subject of further study and consultation at the time the SRSP is developed for the 3800 MHz band. Telesat agrees with this approach and urges the Department to proceed expeditiously to remove uncertainty for both flexible use and earth station operators. Telesat suggests that the further consultation address the following questions:

- What is the appropriate OOBE pfd limit for flexible use transmitters?
- What is the appropriate in-band pfd limit for flexible use transmitters?
- What is the appropriate guard band between flexible use and FSS use outside satellite-dependent areas?
- In light of the pfd limits and guard band adopted by the Department, is the FCC earth station filter mask appropriate for Canadian earth stations?
- Should a coordination trigger distance be adopted between flexible use transmitters and earth stations located at gateway locations and satellite-dependent areas? If so, what distance?
- How will aggregate interference be considered from multiple flexible use transmitters? This is likely to be particularly important at the gateways.

81 Telesat further suggests that the Department confirm the locations of the two gateways, specifically Allan Park, ON and Weir, QC, prior to the further consultation, as this may have a bearing on some of the technical questions. Moreover, a tremendous amount of work has been done in various technical working groups associated with the U.S. FCC clearing activities that should be leveraged in developing the Canadian technical radio specifications for co-existence in this band. The C-band Multi-stakeholder Group Technical Working Group 1 developed the report “Best Practices for Terrestrial-Satellite Coexistence During and After the C-Band

Transition",[41] which provides useful calculation and operational procedures for interference detection, qualification and mitigation.

82 The RABC indicated in its response to Question 19 c) that ISED may wish to study the use of terrestrial devices in an extended shared spectrum band of 3980–4195 MHz. Telesat discourages adding low power fixed wireless access systems on a shared use basis in this band, as it would raise the earth station noise floor and could cause significant interference to satellite receive earth stations, which would affect the reception of video services and other critical telecommunications services operating across Canada.

B. COEXISTENCE BETWEEN FLEXIBLE USE SYSTEMS AND AERONAUTICAL RADIONAVIGATION SYSTEMS

83 Finally, some respondents referred to the RTCA Inc. report filed with the FCC, purporting to assess the risk of interference from terrestrial 5G operations upon radar altimeters.[42] This report was criticized by the CTIA as "severely lacking in several respects: the underlying test data driving the conclusions has not been made available for review, the analysis is suspect, and its findings are unsupported".[43]

84 As the CTIA sets out in its filing:

- The RTCA report inappropriately combines the worst-case performance of multiple altimeters, to create a "performance envelope" that is unlikely to match the characteristics of any individual altimeter.

[41] Available online at https://www.fcc.gov/ecfs/filing/1113936500088.

[42] Comments of The Boeing Company, Air Line Pilots Association, International (ALPA), Canadian Business Aviation Association (CBAA), Bombardier Aerospace, MHI RJ Aviation Group (MHIRJ), Air Canada Pilots Association (ACPA), Collins Aerospace, and the International Air Transport Association (IATA) at 1.

[43] Letter from Kara Graves and Doug Hyslop, CTIA, to Marlene H. Dortch, FCC, GN Docket No. 18122 (filed Oct. 27, 2020), available at https://ecfsapi.fcc.gov/file/102753048597/201027%20CTIA%20Ex%20Parte.pdf.

- It then applied pass/fail criteria that are stricter than the RTCA's own recommended minimum performance standards, which in some cases, would not be satisfied even if *no 5G operations were present*.[44]

85 As the Consultation Document notes, the FCC concluded that technical limits on power and emissions, coupled with a 220 MHz guard band, would be sufficient to protect aeronautical services.[45] Telesat does not believe that the flawed RTCA report, which the FCC considered in reaching this conclusion, establishes otherwise.

XI. CONCLUSION

86 It is impossible to deny the complexities, challenges, and real-world repercussions associated with making 3800 MHz spectrum available for 5G. And there is universal support for the two core objectives of the Consultation:

1. Facilitating world-class, affordable 5G on the quickest timeline possible; and

2. Ensuring that all users of this spectrum today receiving vital services are protected, both during and after the clearing process.

87 The simple reality is that the Telesat Revised Proposal is the only actionable path forward to achieving these two key important objectives.

88 It is also important to underscore that in addition to those key objectives outlined above, the Telesat Revised Proposal facilitates a number of other benefits to Canadians that align with key Government of Canada public policy objectives. These objectives range from lowering cell phone pricing, to creating tens of billions of dollars in economic growth[46], to positioning

[44] *Ibid*., at 2-3.

[45] Consultation Document, para. 180.

[46] A recent (2020) GSMA report titled "5G and economic growth An assessment of GDP impacts in Canada" outlined that facilitating 100 MHz of mid-band spectrum per carrier on an accelerated basis could add approx. C$40 Billion to Canada's GDP over the next two decades.

Canadian companies to compete on a global level playing field, to bringing universal, affordable connectivity to all Canadians.

89 In view of the foregoing, Telesat respectfully submits that the Department should:

1. enable flexible use in the 3800 MHz band;

2. issue flexible use licenses in the 3700-3900 MHz band to Telesat; and

3. adopt the core elements of the Telesat Revised Proposal by which Telesat will:

a. take responsibility for an accelerated clearing of the 3700-4000 MHz band;

b. fund the substantial investment necessary to clear that spectrum without disruption to the critical FSS services that Canadians rely on every day, and without cost to C-band users and end users, through an open and transparent auction process; and

c. invest all of the net proceeds from this process into new facilities and satellites, including Telesat LEO.

All of which is respectfully submitted on behalf of TELESAT

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November 30, 2020

Appendix I – Telesat Clearing Commitment