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Via email: [satelliteplanning-planificationsatellite@ised-isde.gc.ca](mailto:satelliteplanning-planificationsatellite@ised-isde.gc.ca)

Re: *Consultation on Supplemental Mobile Coverage by Satellite*

In a country as vast and diverse as Canada, ensuring reliable communication for all citizens, regardless of their location, is both a challenge and a necessity. While the mobile industry has worked hard to provide robust coverage in and around populated areas, many rural and remote areas —especially those along highways, in the far north, and along coastal areas—struggle with limited or no mobile connectivity. This mobile service gap has significant implications for the safety, well-being, and social inclusion of Canadians living in or traveling through these areas.

Satellite direct-to-cell service is poised to offer a transformative opportunity to bridge the mobile connectivity divide. By enabling unmodified mobile phones to connect directly to satellites, this technology will provide seamless communication in places where traditional mobile base stations cannot reach. While it has clear benefits for emergency services—offering peace of mind to those on the road, in isolated regions, or affected by natural disasters—it is equally important for simply maintaining day-to-day connections with family and friends.

In today's world, staying in touch isn't just a convenience; it's a vital part of our social fabric, supporting mental health, economic activity, and community ties. ISED is moving quickly to support the roll-out of satellite direct-to-cell service as Supplemental Mobile Coverage by Satellite ("SMCS") across Canada, and Space Exploration Technologies Corp. ("SpaceX") is pleased to offer these specific comments on the proposed framework.

/s/ Brett Tarnutzer

Brett Tarnutzer  
Satellite Policy Director  
SpaceX

SpaceX responses to specific questions:

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Q3 ISED is seeking comments on the potential for the SMCS satellites to have smaller beam sizes such that they could serve smaller service areas and potentially reduce protection areas around existing mobile networks.

*SpaceX expects the technology to evolve to support smaller beam sizes, so any regulatory framework developed should establish appropriate protection limits that would ultimately permit sub-national service areas (those smaller than Tier 1).*

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Q4 ISED is seeking comments on other considerations it should take into account when identifying frequency bands where the proposed SMCS framework will be applied.

*As the concept is to supplement the coverage of terrestrial mobile networks, the goal should be to apply the framework to all of the terrestrial mobile bands and create a framework that supports SMCS whenever technology can provide the service and do so without causing harmful interference.*

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Q6 ISED is seeking comments on any other bands that are used for commercial mobile services for which the SMCS framework should be applied.

*There should be an easy path to add new bands for SMCS, and a presumption that any new mobile bands would be included unless there is a technical reason that doing so would cause harmful interference.*

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Q7 ISED is seeking comments on its proposal to modify the CTFA to add new secondary mobile-satellite service allocations, through a footnote, for the provision of SMCS only.

*SpaceX agrees with the approach of modifying the CTFA to include a footnote for secondary MSS allocations for the provision of SMCS.*

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Q8 ISED is seeking comments on its proposal to enable SMCS on a no-interference, no-protection basis with respect to all radiocommunication services.

*By definition, a secondary service cannot cause harmful interference to or claim protection from harmful interference from primary services. We believe this is a sufficient protection for other services and strongly caution against adding any additional provision, which would demote SMCS lower than a secondary service, to the detriment of the service and to Canadian citizens. Existing rules provide for protection of services in adjacent bands as well as protection for mobile services in the band. While SMCS*

*would remain secondary to the primary uses in the band and abide by adjacent band protection rules, given the potential of the service to connect Canadians in currently unserved areas, providing no protection from adjacent services, even to the level the mobile operators enjoy currently, seems to work against the goals of Canada's Connectivity Strategy, "to improve mobile wireless access where Canadians live and work, as well as along underserved roads and highways."*

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Q12 ISED is seeking views on any considerations and/or limitations to providing emergency roaming using SMCS based on the requirements in the MOU on Telecommunications Reliability."

Q13 ISED is seeking comment on the technical possibilities and limitations of SMCS for the provision of 9-1-1 access to all handsets from all service providers where there is SMCS satellite coverage.

Q14 ISED is seeking comments on how SMCS deployments would support the distribution of emergency alerts to mobile devices.

Q15 ISED is seeking comments on whether existing mechanisms will support emergency communications in the absence of a roaming agreement between providers, or whether a new obligation would be appropriate regarding this issue for SMCS.

*Supplemental mobile coverage from space provides a unique value for consumers and first responders facing emergencies. Satellite operators including SpaceX have played a critical role providing emergency connectivity for consumers and first responders in a wide variety of circumstances—whether in remote areas without terrestrial networks or after a natural disaster strikes. SMCS connectivity will expand this to a new level, allowing mobile operators to instantly extend these essential satellite-based capabilities to their subscribers' unmodified handsets wherever they are. As such, ISED is correct to seek additional information about emergency calling capabilities as they relate to SMCS. But at this nascent stage, any new requirements should balance the importance of emergency calling with the overarching goal of promoting innovation and deployment of supplemental coverage capabilities. Emergency requirements for SMCS should be developed with due consideration to the stage of development and deployment of the technology. Phasing in emergency calling requirements over time will allow the technology to evolve to meet the needs to expand and improve emergency access.*

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Q16 "ISED is seeking comments on its licensing proposals:

- a. to issue space station spectrum licences to Canadian satellite operators seeking to provide SMCS
- b. to issue FSAs to foreign satellite operators seeking to provide SMCS in Canada
- c. to issue generic earth station spectrum licences to flexible use licensees seeking to offer SMCS
- d. to limit the eligibility for SMCS earth station licences to flexible use licensees that are considered mobile service providers and that are in good standing with their existing flexible use

licences, to authorize the subscriber devices that would be communicating with the SMCS satellites

e. to issue all SMCS licences on a Tier 1 basis and to limit their scope to only those the service areas and frequency blocks held by the flexible use licensee where they plan to offer SMCS, as supported by the SMCS Agreement

f. for FSAs and earth station licences, to require that an SMCS Agreement be in place and that specific provisions of that agreement be submitted to ISED as part of the application process

g. for Canadian space station spectrum licences, to require that an SMCS Agreement be in place and that specific provisions be submitted to ISED for review prior to offering SMCS within Canadian territory

h. to require that the following provisions of the SMCS Agreement be submitted to ISED for review as described in f) and g) above: the associated flexible use spectrum licences; the specific frequency blocks and areas (which must be part of the mobile service provider's spectrum holdings) where SMCS will be offered; a provision stating that the agreement is not exclusive; and any provisions dealing with interference management, coordination, compliance with technical rules; measures required to facilitate compliance with the SMCS earth station licence conditions; or any other aspects dealing with spectrum management; the signature page; and provisions related to the term of the agreement

i. that separate licences be required for different pairings of mobile service provider and satellite operator"

*SpaceX agrees with the approach to issue FSAs to foreign satellite operators seeking to provide SMCS in Canada. However, SpaceX does not support the provision against any exclusive agreements. Disallowing exclusive arrangements wouldn't necessarily foster competition or expand deployment of the service. Exclusive agreements between mobile service providers and SMCS providers can actually help to drive innovation and investment. Commercial arrangements and terms, such as service exclusivity, can offer assurances to both the SMCS mobile partner and service operator. Development and deployment of new and innovative services such as SMCS involves the commitment of significant resources.*

*Additionally, while the market is new and these services are just being tested and deployed, it is showing the signs of being a vibrantly competitive market. There are already several technically capable companies developing and deploying SMCS services as well as those pursuing the path of providing service to modified terrestrial mobile devices and those more traditional MSS providers. As such, the market is developing in a manner that will sufficiently meet the needs of the terrestrial mobile industry, making this condition unnecessary at best and harmful at worst.*

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Q18 "ISED is seeking comments on its proposals on licence term:

a. For Canadian space station spectrum licences and foreign satellite approvals: a term that either aligns with the associated flexible use spectrum licence term or with the termination date of the agreement between the flexible use licensee and its partner satellite operator, whichever is earlier.

b. For generic earth station licences: annual spectrum licences for SMCS earth stations that will

expire on March 31 of each year, with a high expectation of renewal. Licences would be renewed annually until the flexible use spectrum licence term ends, or when the associated SMCS Agreement is terminated, whichever is earlier."

Q19 " ISED is seeking comments on its proposals to:

- a. impose conditions of licence for Canadian satellite spectrum licences to providing SMCS in Canada as set out in annex A
- b. impose conditions on approvals issued to foreign-licensed satellites providing SMCS in Canada as set out in annex B
- c. impose conditions of licence for SMCS generic earth station spectrum licences, as set out in annex C
- d. not to allow the division, transfer or subordination of SMCS licences"

*As in the response to 16(h), SpaceX does not support the exclusivity restriction in Annex B5, for the reasons stated above.*

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Q20 ISED seeks comments on whether Option 1 (implement a mandatory roaming requirement for SMCS licences that would take effect 5 years following the publication of a decision) or Option 2 (not impose a mandatory roaming requirement) would be most appropriate. Alternate options supported with a strong rationale may also be considered.

*SpaceX strongly supports Option 2, not applying mandatory roaming to SMCS. As a nascent technology, it is premature to assume that mandatory roaming is even a technical possibility at this stage, or would be in five years. And as ISED notes, operators could enter in to voluntary roaming agreements, as technology permits and business needs exist. Therefore, Option 2 is the appropriate path.*

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Q21 ISED is seeking comments on the above proposed licence fees and service standards.

*SpaceX generally supports the fee proposals as they relate to satellite operators.*

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Q22 Technical requirements to be applied to commercial mobile user equipment for SMCS: ISED is seeking comments on its proposal that existing technical requirements in the relevant SRSP and RSS in each frequency band would be sufficient for UE for SMCS.

Q23 Technical requirements to be applied to SMCS space stations: ISED is seeking comments on its proposal to apply the same technical requirements and coexistence measures, such as maximum field strength or power flux density, and unwanted limits, stipulated in the existing applicable SRSPs and RSS for terrestrial commercial mobile services in the respective band of interest, to space stations for SMCS. ISED is also seeking comments on whether the specified general provisions in existing technical standards are sufficient to enable SMCS and to facilitate coexistence with terrestrial operations. ISED is

also seeking comments on any additional technical requirements that may be needed for space stations for SMCS.

*SpaceX strongly cautions against adopting any single out-of-band power flux-density (“PFD”) limit and believes a more appropriate approach is to apply the accepted ITU interference protection threshold for terrestrial networks, such as a -6 dB interference-to-noise ratio (“I/N”). If it is deemed necessary to adopt specific PFD limits, these should be band-specific and based on realistic parameters to arrive at the -6 dB I/N. Adopting band-specific limits would align with fundamental physics and sound engineering practice by recognizing the outsized role that frequency plays when calculating appropriate PFD levels to meet a given interference protection criterion. This is consistent with the SpaceX position in the United States with the FCC.<sup>1</sup>*

*ISED already uses a band-specific approach in its Standard Radio System Plans for the mobile bands. But ISED has also noted the importance of operator to operator coordination. The technical requirements for PCS (SRSP-510) that in the case of operating co-frequency and adjacent areas,*

*“ Possible interference conflicts resulting from the operation of two systems in the same block in adjacent service areas may occur and should be resolved through mutual arrangements between the affected parties following consultation and coordination.”*

*And in the case of operation in adjacent frequency blocks,*

*“Possible interference conflicts resulting from the operation of two systems operating in adjacent blocks may occur even though the technical specifications of both this SRSP and RSS-133 are met.*

*Interference conflicts should be resolved through mutual arrangements between the affected parties following consultation and coordination.”*

*Adopting a flexible approach to interference management is an important factor in allowing the service to develop and evolve. This, when combined with the secondary status of the service, will put the onus on the SMCS provider to address and resolve complaints of actual harmful interference but not unduly constrain the SMCS service.*

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Q24 Interference resolution: Given that SMCS is proposed to operate on a NINP basis, ISED is seeking comments on its proposal to require operators of SMCS (both earth stations and satellite licensees) to assume the onus of mitigating any interference that occurs to licensed in-band and/or adjacent band/block terrestrial operations. ISED is seeking comments on any potential challenges in complying with the existing coexistence measures prescribed in the applicable technical standards.

*If SMCS is a secondary service, it follows that the SMCS provider will need to mitigate any actual harmful interference that occurs to primary services.*

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<sup>1</sup> SpaceX, For Modification of Authorization for the SpaceX Gen2 NGSO Satellite System to Add a Supplemental Coverage from Space System; <https://www.fcc.gov/ecfs/document/10823080475644/1>

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Q25 Coexistence between SMCS space stations: ISED is seeking comments on its expectation that operators of SMCS space stations coordinate their constellations and resolve any case of interference between them that may arise.

*SpaceX believes that operator-to-operator coordination is the ideal approach ensure cooperation and coexistence of multiple SMCS space stations. Operators should be required to coordinate in good faith and completed coordination should not be a condition of the grant of an FSA.*

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Q26 Protection of radio astronomy services: ISED is seeking comments on its proposal to require SMCS satellites to meet the protection criteria as set out in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, for the applicable radioastronomy frequency bands.

*SpaceX remains steadfast in its commitment to work with the astronomy community to protect critical optical and radio astronomy activities around the world. To that end, SpaceX reached an historic coordination agreement with the US National Science Foundation ("NSF") to protect radio astronomy. Through this coordination, SpaceX has worked collaboratively with the NSF, the National Radio Astronomy Observatory ("NRAO"), and astronomers around the world on innovative technical solutions that promote efficient spectrum sharing and protect radio astronomy. SpaceX recommends that ISED requires good-faith coordination efforts with relevant radio astronomy services in Canada after SMCS authorization. This method will allow the operator and the specific radio astronomy site to craft the most appropriate coexistence approach.*