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Innovation, Science and Economic Development Canada
Engineering, Planning and Standards Branch
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**Re: Preliminary consultation on Mobile Satellite Service
Developments and the Use of L and S Band Spectrum –
Document SMSE-008-26**

The Mobile Satellite Services Association (MSSA) welcomes this opportunity to contribute to the preliminary consultation by Innovation, Science and Economic Development Canada (ISED) on mobile satellite service (MSS) developments and the use of L and S band spectrum.

MSSA is a non-profit industry association, founded in 2024, that seeks to promote and advance the emerging ecosystem for advanced non-terrestrial network (NTN) services, including direct-to-device (D2D). MSSA supports the efforts of advanced NTN solutions providers, including terrestrial mobile and satellite operators, original equipment manufacturers (OEMs), infrastructure providers, chip vendors, and others. MSSA is focused on facilitating a global ecosystem utilizing spectrum already allocated and licensed for MSS and well-suited for integration into a broad range of mobile devices. More specifically, MSSA seeks to facilitate global mobile connectivity via satellite through open, standards-based solutions. More information about MSSA is available at www.MSSAssociation.org.

MSSA agrees with ISED that the MSS sector holds considerable and growing promise to meet the advanced telecommunications needs of Canadians, including but not exclusively in rural, remote, northern and Indigenous communities. We share ISED's enthusiasm for D2D as a core MSS application—supported by a limitless range of internet of things (IoT) uses, including asset tracking, utilities monitoring, and smart farming—that will provide sweeping economic, social and security benefits for Canadian consumers and businesses, helping to close Canada's last remaining digital connectivity gaps.

MSSA encourages ISED to maintain an MSS policy framework that is clear and predictable, aligned with internationally recognized standards,

technology neutral, and that supports investment, long-term planning and the continued development of integrated satellite–terrestrial connectivity. Among other things, we call upon ISED to recognize decades-long MSS operator investments that have prepared the L and S band spectrum and ecosystems as key enablers of next-generation MSS, to recognize the distinct coordination and harmonization status of each MSS band, and to not adopt measures that would significantly delay delivery of technologically advanced services to Canadians.

Canada’s existing policy framework is sufficient to immediately enable the next generation of MSS in L and S band spectrum. Within this context, MSSA submits that ISED should support the continued evolution of MSS networks, systems, and technologies, including the deployment of GSO networks, NGSO systems, multi-orbit solutions, and other innovative MSS architectures, while maintaining regulatory certainty and international harmonization.

With these introductory comments in mind, MSSA offers the following responses to the individual questions posed in the preliminary consultation document.

Existing and future MSS use cases

Q1 ISED is seeking comments on the future demand for:

- a. Traditional MSS applications such as satellite phones and terminals**
- b. IoT MSS applications including NB IoT and LTE-M**
- c. D2D using MSS or terrestrial spectrum**
- d. ATC**
- e. Any additional emerging MSS use cases**

Canada’s vast and often remote geography makes it a prime market for all traditional and emerging MSS use cases, including standardized Third Generation Partnership Project (3GPP) NTN services, such as D2D, advanced IoT applications and other emerging NTN use cases. These use cases are expected to include applications beyond basic voice and messaging, such as mobile broadband, coverage extension, disaster communications, global roaming, broadcasting, asset tracking, environmental monitoring, smart infrastructure, and many other emerging applications.

D2D and other advanced NTN services represent a transformative opportunity for Canada, delivering substantial benefits to individuals,

businesses and broader society. Such services will significantly enhance connectivity and safety for Canadians across the country, while expanding economic opportunities for individuals in rural, remote, northern and Indigenous communities by enabling remote work, e-commerce, online education, telemedicine, and digital financial services. People living in or traveling through unserved or underserved areas of Canada will increasingly be able to access connectivity on their everyday devices, including smartphones, smartwatches, and other wearables, without needing any specialized equipment.

For mobile network operators (MNOs), D2D and other advanced NTN services that rely on MSS spectrum represent new revenue opportunities through partnerships with satellite operators, enabling differentiated connectivity packages that combine terrestrial and satellite capabilities. This will enhance customer value propositions while extending effective coverage without the capital burden of building terrestrial infrastructure in economically challenging areas. At the national level, D2D and other advanced NTN services will lay the foundation for future integrated terrestrial-satellite networks as part of the evolution towards 5G Advanced and 6G development, positioning Canada at the forefront of next-generation telecommunications. All this can be achieved through the effective use of globally harmonized MSS spectrum without requiring MNOs to repurpose terrestrial spectrum needed for core mobile services. The L and S bands, in particular, are internationally coordinated, incorporated into 3GPP standards, and supported by established interference management mechanisms under the International Telecommunication Union (ITU) Radio Regulations.

MSSA recognizes that Canada has established a policy framework supporting the use of certain International Mobile Telecommunications (IMT) spectrum bands for satellite services. However, the technical and regulatory framework for IMT-based NTN remains under international study, including within the ITU-R in advance of World Radiocommunication Conference 2027 (WRC-27) Agenda Item 1.13. IMT spectrum alone is unlikely to meet the coverage and capacity requirements to enable robust satellite connectivity. By contrast, MSS spectrum already provides a globally harmonized, standards-based, and readily available foundation for the deployment of D2D and other NTN services in Canada today. Additional information is available in MSSA's White Paper on Spectrum Management.

Q2 ISED is seeking comments on the timelines for the development of the equipment ecosystems for the MSS use cases.

MSSA is a trade association and not a service provider or network operator. Individual members of the MSSA are best positioned to comment on

the timelines for the development of specific equipment ecosystems and use cases.

This being said, the MSS equipment ecosystem is advancing rapidly, driven by ongoing standardization activities at 3GPP and other standards development organizations, as well as continued investments by satellite operators, device manufacturers, chipset vendors, and other ecosystem participants.

Notably, support for the MSS bands and 3GPP NTN protocols is now visible in both mass-market chipsets and devices supporting narrowband D2D services, and in the upcoming chipset releases supporting broadband NTN-NR capabilities.

Q3 ISED is seeking comments on the amount of spectrum that would be required for the MSS use cases and the types of service (e.g. text, voice calling, data or broadband services) that would be provided under each use case, including any assumptions made in terms of numbers of subscribers or devices, frequency reuse factors, etc.

Individual members of the MSSA are best positioned to comment on Question 3.

Q4 ISED is seeking comments on whether there are any changes to the existing MSS policy framework that could be made to facilitate and/or improve the availability of any of the MSS use cases.

MSSA has provided consultative inputs to numerous national administrations and regional regulatory bodies, in which MSSA has consistently encouraged regulators to put in place MSS policy frameworks that are:

- a) clear and predictable,
- b) aligned with internationally recognized standards (including 3GPP and relevant ITU frameworks),
- c) technology neutral, and
- d) that support investment, long-term planning and the continued development of integrated satellite-terrestrial connectivity.

MSSA also calls upon national administrations to avoid being overly prescriptive in their regulatory frameworks, allowing for different technical and

operational models and partnership arrangements, both domestic and international.

Canada has a mature MSS policy framework, and a longstanding commitment to the development and commercialization of innovative services in the MSS bands that are the subject of the current preliminary consultation. ISED should recognize decades-long MSS operator investments that have prepared the L and S band spectrum and ecosystems as key enablers of next-generation MSS, including mobile broadband from space. Furthermore, ISED should recognize the distinct coordination and harmonization status of each MSS band (including at the cross-border and broader international levels) and prioritize building on the existing foundation. This should be a priority in order to enable near-term benefits to Canadians, ensure Canada is at the cutting edge of advanced NTN services, including D2D, and support the timely introduction of technologically advanced services to Canadians.

Internationally harmonized MSS allocations, particularly in the L and S bands, provide a well-established and structured foundation for the deployment of D2D and other advanced NTN services. These bands are already incorporated into 3GPP NTN standards and are supported by existing coordination mechanisms under the ITU Radio Regulations. D2D and other advanced NTN services continue to be implemented within these existing frameworks, without the need for new spectrum allocations or fundamental regulatory changes. Leveraging this established environment enables early deployment while ensuring efficient spectrum use and effective coexistence with other services.

ISED's existing MSS policy (RP-007) and modernized space station licensing rules are designed to be technologically neutral, flexible and adaptable to the innovation that is intrinsic to the telecommunications sector. This existing framework is sufficient to immediately enable the next generation of mobile satellite services in L and S band spectrum, including the deployment of GSO networks, NGSO systems, multi-orbit solutions, and other innovative MSS architectures, and should accommodate operator-initiated migrations between these types of systems.

Q5 ISED is seeking comments on the need for addition MSS spectrum.

MSSA emphasizes the importance of ensuring that all new spectrum allocations are properly coordinated through the work of the ITU and the upcoming WRC-27. MSSA notes, however, that demand for MSS, including standards-based NTN services and D2D and IoT applications, is evolving rapidly. Any consideration of additional spectrum resources should take into account international harmonization, ecosystem development, spectrum efficiency,

and the outcomes of relevant ITU-R studies and WRC-27 decisions. Additionally, the outcomes of relevant ITU-R studies and WRC-27 decisions may provide useful guidance for future spectrum policy considerations and could help shape the global device and satellite ecosystems in ways that will enable Canada to benefit from economies of scale, interoperability and greater equipment availability, which will may benefit Canadian consumers.

Q6 ISED is seeking input on planned business cases for the MSS systems, including consumer models, target markets, planned partnerships, and timing for services.

MSSA notes that the MSS and NTN ecosystem continues to evolve rapidly, with a growing range of commercial models and collaborative arrangements emerging across the satellite, mobile, and device sectors.

Expanding Canadian coverage

Q7 ISED is seeking comments on whether a Canadian coverage requirement should be applied to MSS space station licences.

MSSA encourages ISED to maintain flexibility in any coverage-related requirements, recognizing that different MSS systems may employ different technical and operational approaches to serving Canadian users and may have different coverage characteristics.

Q8 ISED is seeking comments on the need for a Canadian coverage requirement for the use cases in section 6.1.

The benefits of extended geographic coverage accrue to all MSS use cases. MSSA believes that any consideration of coverage-related requirements should take into account the diversity of MSS technologies, system architectures, and service offerings, while preserving sufficient flexibility to support continued innovation, investment and service development.

Q9 ISED is seeking comments on whether there should be spectrum reserved for Canadian system(s) and/or whether Canadian networks should be prioritized.

MSSA does not take a position on this matter. Individual members are best positioned to comment on any proposals relating to Canadian-system or Canadian-network prioritization requirements.

Coexistence

Q10 ISED is seeking comments on the ability of MSS systems to coexist when using the same frequencies in the same geographic area and whether there are any considerations needed for coexistence between new and legacy MSS systems.

It is widely recognized within the MSS industry that co-frequency, co-coverage use of MSS spectrum by multiple satellite operators is not feasible due to inherent technical and operational constraints related to the use of omnidirectional antennas on mobile terminals that radiate and receive in all directions. These constraints have been acknowledged in numerous technical and policy fora for decades, including at the ITU, the European Union (EU) and the Federal Communications Commission (FCC). In short, there is currently no technical basis for believing that co-frequency, co-coverage use of MSS spectrum by independent satellite systems could be implemented without causing harmful interference to existing MSS networks and services.

Q11 ISED is seeking comments on whether MSS technology advances, including the use of advanced multiplexing schemes, would facilitate sharing of the same band in the same geographic area.

See MSSA's response to Question 10.

Q12 ISED is seeking comments on the ability of the different MSS use cases (described in section 6.1) to share the existing MSS spectrum, and whether the band plans of the existing MSS bands need be reviewed. Should MSS bands be segmented to allow for multiple satellite operators and/or to facilitate different types of MSS (i.e. traditional, D2D and IoT)?

As MSS use cases increasingly align with global 3GPP standards, MSSA sees no inherent reason why these use cases should not be able to operate

within and share existing MSS spectrum within existing MSS band plans—provided they are carefully coordinated by a single operator-licensee. Individual operators can allocate spectrum to the different use cases based on their business objectives, market forecasts, network architectures, and other technical and operational constraints.

Please also see our response to Question 10 regarding the limitations associated with co-frequency, co-coverage use of the same MSS spectrum by multiple operators.

Terrestrial use of MSS bands

Q13 ISED is seeking comments on current and future plans for terrestrial use in MSS bands in the context of ATC or otherwise.

Individual members of the MSSA are best positioned to comment on Question 13.

Q14 ISED is seeking comments on what conditions of licence should be applied to terrestrial use in MSS bands.

Individual members of the MSSA are best positioned to comment on Question 14.

The 1525–1559/1626.5–1660.5 MHz bands

Q15 ISED is seeking comments on the key regulatory considerations that should be factored in examining the evolution of MSS in L-band, including the shifted interest in use from GSO to NGSO systems.

Individual members of the MSSA are best positioned to comment on Question 15.

Q16 ISED is seeking comments on how recent MSS developments impact the long-standing coordination agreements between

satellite operators in this band, as well as any related considerations with respect to the ITU coordination process.

Individual members of the MSSA are best positioned to comment on Question 16.

The 1610–1626.5/2483.5–2500 MHz bands

Q17 ISED is seeking comments on the key regulatory considerations that should be factored in examining the evolution of MSS in L/S-band.

Individual members of the MSSA are best positioned to comment on Question 17.

Q18 Is the sharing of these bands on the basis of MSS still technically feasible using CDMA technology? Are there other access technologies for which shared MSS use could be facilitated?

Individual members of the MSSA are best positioned to comment on Question 18.

The 2000-2020 MHz/2180-2200 MHz bands (S-band)

Q19 ISED is seeking comments on the key regulatory considerations that should be factored in examining the evolution of MSS in S-band, including the shifted interest in use from GSO to NGSO systems.

Individual members of the MSSA are best positioned to comment on Question 19.

Q20 Given that the S-band is allocated to both MSS and mobile services on a co-primary basis, ISED is seeking comments on interest in using this band for MSS only, flexible use only, or a

combination of both services (e.g. portions of the band designated for MSS and other portions for flexible use services).

Individual members of the MSSA are best positioned to comment on Question 20.

The 2020-2025 MHz band

Q21 Given that the ecosystem for AWS has not materialized in the band, ISED is seeking comments on whether the AWS designation in 2020-2025 MHz should be rescinded.

MSSA notes ISED's observation that the Advanced Wireless Service (AWS) ecosystem has not materialized in the 2020-2025 MHz band.

MSSA encourages ISED to consider whether the current designation continues to support the most efficient and effective use of the spectrum in light of evolving market developments, technological advances, and emerging demand for satellite-based and NTN services.

Any future decisions regarding the band should take into account international developments, ecosystem maturity, and the potential impact on existing and future investments.

Q22 ISED is also seeking comments on whether there is interest in using this band for narrowband MSS in Canada, and whether an MSS allocation should be added in the 2020-2025 MHz band. If yes, ISED is seeking additional comments on whether it should be in the Earth-to-space direction to align with Region 2 and the adjacent band, or whether it should be in both directions to provide flexibility.

MSSA notes that the 2020-2025 MHz band is adjacent to existing MSS spectrum and that ISED has identified potential interest in supporting MSS applications within the band.

Should ISED consider introducing an MSS allocation in the future, MSSA encourages the Department to take into account international harmonization considerations, ecosystem development, adjacent-band compatibility, and the potential benefits of regulatory flexibility to accommodate evolving MSS and NTN technologies.

MSSA further encourages ISED to ensure that any future framework supports efficient spectrum use and provides sufficient flexibility to accommodate future service and technology developments.

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We thank the Department for the opportunity to comment on the issues raised by the preliminary consultation and stand ready to engage further with the Department and other stakeholders to advance the growth of MSS services for Canadians.

Yours sincerely,

/s/

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