Your response

Question	Your response
Questions for stakeholders that are interested in using 2 GHz MSS	
Question 1: Which service(s) do you wish to provide using 2 GHz MSS spectrum? When do you expect that you could provide these services, and what UK geography would these services cover? Where applicable, please provide evidence to support your response (including but not limited to): business plans, internal market forecasts, board papers, analyst reports, etc.	Confidential? – N Terrestar Solutions Inc. ("Terrestar", www.terrestarsolutions.ca), founded in 2008 and headquartered in Montreal, Quebec, is a mobile-satellite service ("MSS") network operator dedicated to providing the most advanced non-terrestrial network ("NTN") direct-to-device ("D2D") and Internet of Things ("IoT") services across Canada and around the world. Terrestar is also a founding member of the Mobile Satellite Services Association ("MSSA", www.mss-association.org), a global organisation dedicated to the promotion and expansion of MSS services, including NTN D2D and IoT services. Terrestar's existing MSS services are provided by way of our exclusive ownership of the Canadian capacity of the EchoStar T1 geostationary orbit ("GSO") satellite, situated above the Equator at longitude 111.1° W, with user links in the 2 GHz MSS band. In addition, Terrestar has submitted a filing to the International Telecommunication Union ("ITU"), through the Canadian administration, for the operation of a non-geostationary orbit ("NGSO") satellite constellation, also with user links in the 2 GHz MSS band (see API CAN2025-73257 and CR/C CAN2025-73259). Terrestar's NGSO constellation will operate at a high orbital inclination (79°) and an altitude of 680 km, meaning that it will be one of the rare low earth orbit ("LEO") constellations expressly designed to provide comprehensive geographic coverage of the Earth's surface, including the high northern latitudes. As such, it will provide comprehensive coverage of the entire landmass of the United Kingdom (up to and including the Shetland Islands) and all its territorial waters. Terrestar's constellation will be fully Third Generation Partnership Project ("3GPP") compliant, taking ad-

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	vantage of the extensive NTN integration work undertaken as part of 3GPP Releases 17, 18, 19 and eventually 20. In fact, Terrestar has already made substantial investments to offer Release 17 compliant fourth generation narrowband IoT ("4G NBIoT") services such as chat, messaging and soon basic voice through our existing GSO satellite platform. These infrastructure investments are being enhanced to support 3GPP Release 18 compliant fifth generation new radio ("5G-NR") services such as high-quality voice and high-throughput data services over NTN compliant devices currently being developed by handset manufacturers. All these foundational investments will be available for use when the NGSO constellation satellites begin launching in 2027. Terrestar's NGSO constellation is expressly designed to support 3GPP band n256 (1980-2010 MHz uplink and 2170-2200 MHz downlink) and will be ready to begin commercial service in 2028. The constellation will consist of 66 satellites initially, expanding to as many as 150 satellites over time in response to capacity demand. In addition, Terrestar's plan is to integrate its constellation with a broader international partner constellation, likely at medium inclination, creating opportunities for the mutually beneficial exchange of satellite capacity. Key to maximizing these synergies will be the upcoming implementation of 3GPP Release 20 (expected to begin in 2027), which includes functionality allowing for the interworking of otherwise distinct satellite systems. Terrestar's NGSO business model focuses heavily on the delivery of high-capacity low-latency NTN D2D services directly to the everyday smartphones that end-users carry in their pockets. Within the next few years, with the deployment of 5G-NR satellite services, we foresee the day when the end-user experience in NTN D2D mode will be largely indistinguishable from the end-user experience in terrestrial mode. Terrestar is also working with specialized partners to develop innovative IoT service offerings in a variety of vertical sectors, including through the use of hybrid IoT modules that can shift seamlessly from terrestrial to space-based connectivity. Regarding NTN D2D services specifically, we further note that Terrestar's business model is founded on an open network philosophy whereby Terrestar will make its MSS

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	network capacity available to any and all terrestrial mobile carriers in its serving territory, allowing each of them to market an extended connectivity service to their own end-users in the way they see fit. This approach is fundamentally pro-competitive and pro-consumer. In light of all the above, should Ofcom decide to open the 2 GHz MSS band in the UK to new entrants, Terrestar believes it would be in a unique position to provide innovative, high value-added services to the entire UK population across the entire UK geography.
Question 2: Please explain any barriers to your deployment of a service and your plans to address them.	Confidential? – N Terrestar's ability to offer its proposed NTN D2D and IoT services in the UK is contingent on a positive licensing decision from the Canadian administration, which we are confident will be forthcoming in the coming months. It will then be contingent on access to adequate 2 GHz MSS spectrum in the UK, which is the subject of the current consultation. Please see our response to Question 5 below for our views on the minimum amount of spectrum that would be required.
Question 3: What benefits might be realised by enabling the service(s) you wish to provide through to 2032 (the short term)? Similarly, through to 2045 (the long term).	Confidential? – N The services proposed by Terrestar in response to Question 1, coupled with the comprehensive geographic coverage of the Terrestar NGSO constellation, will serve to close the last great digital divide facing UK consumers and businesses. Henceforth, MSS voice and data connectivity, of a quality largely indistinguishable from that experienced in terrestrial mode, will be available to everyone, everywhere and at all times. The economic, social and security benefits that flow from these new services will be substantial and far reaching. First, numerous industries with a presence in the UK's rural and remote regions – including agriculture, forestry, mining and tourism – will benefit from always-on connectivity services that were simply not feasible before, including machine-based IoT services. Among the

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	specific use cases envisaged are precision agriculture, early forest fire detection, asset tracking and maintenance, and access to news and entertainment by visiting tourists. Full-time residents will also benefit from improved access to health, education and other social services. Second, emergency responders and average citizens will have a lifeline in the case of emergencies. Access to 999 services will be enhanced in rural and remote areas, and backup connectivity will be available during natural disasters that temporarily cripple terrestrial networks, even in urban and suburban areas. Third, there will be important dual-use opportunities to improve the efficiency and effectiveness of military operations, including territorial surveillance and remote search and rescue operations. All the benefits just described will be available beginning in 2027 and will be subject to constantly improving quality and performance through to 2045.
Question 4: Please explain what you consider would be the appropriate licence period for the service(s) you wish to provide? Please explain why, including providing evidence, such as asset use life, where applicable.	Confidential? – N The individual satellites that will make up the Terrestar NGSO constellation will have a projected operating life of seven years. This being said, the licence period for the system as a whole must reflect a broader conception of the risk being incurred by the system operator, including investments in upfront design, earth station capabilities, and the time required to build a sustainable market for the services provided. To properly allow the system operator to earn an adequate return on its investments, we consider that a minimum licence period of twenty years would be required, with a high expectation of renewal should compliance with licence conditions be maintained.
Question 5: What is the minimum amount of spectrum you would need to provide your service(s) to deliver a basic service to customers? What additional service features and/or customer numbers could you meet with a	Confidential? – N Terrestar agrees with the authors of the *Study on mobile satellite services (MSS) in the 2 GHz band in the EU* (Detecon International GmbH, 2025), who concluded that

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larger allocation (please specify the amount of spectrum)? Please include details of any guard bands that you would consider necessary within this spectrum for coexistence purposes.	2x10 MHz is the minimum amount of spectrum required to allow a licensee to provide a moderate level of satellite broadband services in a D2D product offering. We further agree that the 2 GHz MSS band should be used only for International Mobile Telecommunications ("IMT"), as a means of ensuring maximum spectral efficiency through the elimination of guard bands with non-IMT services.
Question 6: For each service, please explain why you wish to use 2 GHz MSS. Please explain why this is a more suitable frequency compared to alternatives.	Confidential? – N Broadly speaking, there are two groups of spectrum bands that can support MSS NTN services of the sort proposed to be offered by Terrestar: dedicated MSS bands that have been studied and authorized at the ITU level, and terrestrial IMT bands that have been repurposed for MSS use by certain administrations under the auspices of ITU Radio Regulation 4.4 ("RR 4.4"). There are clear advantages to providing MSS services using dedicated ITU-authorized MSS bands. First, MSS has primary status in these bands, conferring important protections against unwanted interference from other potential uses. In contrast, use of terrestrial IMT bands for MSS, in those administrations where it has been approved to date, relies on a secondary status and therefore does not benefit from such protections. Second, coordination across international borders is greatly facilitated in dedicated ITU-authorized MSS bands by the existence of standardized coexistence rules, which have not yet been developed for MSS use of terrestrial IMT bands. Third, MSS providers that make use of dedicated ITU-authorized MSS bands do not have to convince terrestrial wireless carriers to give up slices of valuable terrestrial wireless spectrum to begin MSS operations, greatly facilitating market entry. Within the family of dedicated ITU-authorized MSS bands, there are also important differences between the candidate bands. For example, the Big LEO band and the L-band tend to be more heavily encumbered by existing uses, with the L-band also having power management issues due to its proximity to the global positioning system

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	("GPS"). This leaves the 2 GHz MSS band as the most promising dedicated MSS band for deployment at scale Terrestar, due to our existing GSO operations, has extensive experience deploying and coordinating use of the 2 GHz MSS band. Our selection of the same band for our future NGSO operations also reflects our confidence that the 2 GHz MSS has the strongest path to rapid, sustainable provision of high-capacity NTN D2D and IoT services.
Question 7: To what extent are there economies of scale across the UK and the EU for each service you wish to provide? What is the minimum number of users/devices you would need for each service to be economically viable?	Confidential? – N As described in response to question 1, Terrestar's NGSO constellation is expressly designed to provide comprehensive geographic coverage of the Earth's surface, including the high northern latitudes. As such, it will provide comprehensive coverage of the entire landmass of the United Kingdom (up to and including the Shetland Islands) and all its territorial waters. Comprehensive coverage will also be provided to the entire EU. The UK and EU markets will be priority markets for the Terrestar NGSO constellation. Economies of scale and the overall business case for the constellation will improve considerably if rights to provide service are secured in these markets.
Question 8: For the service(s) you wish to provide in the UK, what is the extent and nature of potential technical coexistence issues with other jurisdictions, particularly the EU? What are minimum satellite beam footprint sizes that you consider feasible, and what cross-border sharing conditions do these facilitate?	Confidential? – N As explained in response to question 6, one of the clear advantages of providing MSS services using dedicated ITU-authorized MSS bands (such as the 2 GHz MSS band, as proposed by Terrestar) is the existence of standardized ITU-approved coexistence rules across international borders. This eliminates the need to establish cross-border protection zones, which are required when using terrestrial IMT bands for MSS under RR 4.4. As the edges of satellite beams will never align precisely with national borders, including along the border between the UK and the members of the EU, it will be necessary to develop traffic routing algorithms between the partner carriers in these areas. Such algorithms already

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	exist for terrestrial wireless services along international borders and succeed very well in ensuring effective call routing without the need to introduce service gaps in the form of protection zones.
Questions for stakeholders not interested in using 2 GHz MSS	
Question 9: What service(s) do you think could use 2 GHz MSS in the UK? What benefits do you think these services could provide, and how much spectrum do you consider these services require to (i) deliver basic services, and (ii) to deliver more advanced services?	Confidential? – N Not applicable.
Questions for all stakeholders	
Question 10: Overall, to what extent does demand for 2 GHz MSS spectrum to provide services in the UK relate to demand for spectrum to provide 2 GHz MSS services in the EU (and vice versa)?	Confidential? – N See the response to question 7 above. The UK and EU markets will be priority markets for the Terrestar NGSO constellation. Economies of scale and the overall business case for the constellation will improve considerably if rights to provide service are secured in these markets. These positive effects will be particularly pronounced given that the range and demand for services – D2D and IoT; civilian, security and military – is expected to be similar across the two geographies.
Question 11: Do you consider there would be any benefits or risks from aligning with the EU regarding the types of 2 GHz MSS services being authorised, as well as the specific operators licensed to operate?	Confidential? – N As noted above, aligning with the EU will improve economies of scale and the overall business case for any constellation that secures the right to serve both the UK and EU markets. We do not foresee any risks related to such alignment.
Question 12: Do you have any other points that we should consider for our consultation on future proposals?	Confidential? – N

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	Terrestar has no other points for consideration at this time.