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.	Confidentiality - Y

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Question 2: Please explain any barriers to your deployment of a service and your plans to address them.	Confidential? – **No.** *Technical Barriers.* A technical challenge in deploying D2D-MSS in the 2 GHz band includes the limitations of current consumer-grade mobile devices, particularly in terms of antenna design, power limits, and hardware compatibility. Standard smartphones are equipped with compact, omnidirectional antennas optimised for terrestrial networks, which are poorly suited to receive the significantly weaker signals from satellites. This makes it difficult to maintain a reliable link without specialised antenna systems or signal boosting techniques. However, these challenges are now being actively addressed. For example, major chipset manufacturers have announced product roadmaps based on 3GPP's Release 17+ NTN standards, and major smartphone original equipment manufacturers, such as Samsung and Google, have launched devices that support D2D-MSS on NTN standards. A study by Analysys Mason for Omnispace anticipates around 85Mn mobile handset connections in the UK alone by 2040, underscoring that while this may be a current technical barrier, as technology progresses, the scale of the opportunity for D2D-MSS only grows.

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	Regulatory Barriers. One potential barrier to deploying D2D-MSS in the 2 GHz spectrum is a shared-use approach to licensing. Omnispace asserts that co-frequency coordination and sharing are not viable for D2D-MSS in the 2 GHz spectrum. This is because consumer user terminals (e.g., handsets) are nomadic, use low-gain omnidirectional antennas, and cannot control interference effectively in a shared environment. Providing dynamic carrier management between competing systems would be infeasible. To prevent this, Omnispace advocates for exclusive-use D2D-MSS authorisations in the 2 GHz band and recommends aligning out-of-band emission limits with those used in terrestrial services to minimise interference. This would protect expanded D2D-MSS operations against harmful interference and promote UK leadership in the global space economy. A second potential barrier would be a lack of contiguous spectrum needed to support D2D-MSS in the UK. Unfragmented, contiguous spectrum is necessary for D2D-MSS to deliver full 5G and 6G capabilities to UK citizens and businesses. To prevent these barriers to deploying reliable service, Omnispace advocates for the UK allocating 2 x 15 MHz per operator, as explained in further detail in Question 5's response. *Economic Barriers.* In addition to technical and regulatory challenges, economic barriers to deploying D2D-MSS in the 2 GHz band could be significant, particularly if the UK's policies diverge from global standards. As discussed above, the smartphone ecosystem is aligning with 3GPP's Release 17+, and manufacturers are building products based on these standards. If the UK fails to align with 3GPP's standards, it risks isolating itself from global device supply chains and forfeiting the economies of scale that come from mass-market hardware compatibility. This would increase costs for both operators and consumers, reduce innovation incentives, and potentially delay or prevent the rollout of D2D services in the UK. Conversely, harmonising the use of the 2 GHz MSS spectrum with 3GPP NTN standards would ensure compatibility with a growing ecosystem of devices, lower deployment costs, and position the UK to benefit from a globally competitive and interoperable satellite-mobile market.

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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? – **No.** D2D-MSS will deliver immense value and benefits for UK businesses and citizens. Up to 2032, D2D-MSS will enhance public safety and digital inclusion by extending reliable connectivity to rural, remote, and underserved parts of the UK. This will ensure that more people, regardless of location, can access emergency services and remain connected during critical situations. Key sectors of the UK economy, such as agriculture, energy, logistics, and maritime operations, will gain new tools for monitoring, asset tracking, and operational efficiency. Up to 2045, these services will deliver even greater value as D2D-MSS capabilities become deeply integrated into daily life and essential infrastructure. Citizens across the UK will enjoy seamless, ever-available connectivity and improved healthcare, education, and government services regardless of location. Businesses will leverage advanced autonomous transport, connected vehicles, and supply chain optimisation while driving economic growth and sustainability. The result will be a more resiliently connected UK as D2D-MSS plays a vital role in public welfare and industrial innovation.
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? – **No.** Omnispace believes that a 15-year licence period is the most appropriate duration for the D2D-MSS it intends to deploy. This position reflects the substantial capital investment required for satellite systems, the long development timelines involved, and the need for regulatory certainty to support sustainable service delivery. It is also aligned with the licence periods of other international jurisdictions, such as the European Union (EU) and United States. MSS networks involve complex development processes and are highly capital-intensive. As explained in Question 1's response, Omnispace's current constellation includes a MEO satellite and two LEO satellites, with plans to deploy an additional 600 satellites by 2045. These deployments are intended to support a 3GPP-compliant NTN offering global mobile connectivity. The scale and cost of

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	this infrastructure make a 15-year licence term critical for investment recovery and business continuity. Investment security is a key concern for satellite operators like Omnispace. The potential for spectrum reassignment at the end of a shorter licence term introduces risk and can deter long-term capital investment. A 15-year licence term significantly reduces this risk and promotes investor confidence. To further mitigate end-of-term uncertainty, Omnispace recommends that Ofcom also adopt a right of first refusal for licence renewal, provided that the licencee has met its regulatory and financial obligations. Omnispace's long-term service roadmap also justifies a longer licence duration. Service milestones include the provision of messaging, chat, thin-data, and voice services by 2028; full 5G service by 2030; and the rollout of 6G services once relevant 3GPP standards are finalised. These developments reflect the evolving demands of consumer, automotive, infrastructure, and industrial IoT markets, all of which require a stable regulatory framework that supports continuous innovation and service delivery over an extended period.
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 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.	Confidential? – **No.** Omnispace considers 2 x 10 MHz the minimum allocation required to provide viable D2D-MSS to the UK. A minimum of 10 MHz will ensure that the three major use cases of 3GPP 5G NTN (reflected in Report ITU-R M.2514) can be deployed. These include enhanced mobile broadband over satellite, high-reliability communications, and massive machine-type communications. However, 2 x 15 MHz is optimal for 3GPP 5G NTN and will enable increased system capacity and robustness. Space-based services inherently require greater radiofrequency spectrum to deliver terrestrial-comparable network service. Achieving comparable data rates and service quality—so that users can access the full range of voice, video, and data services they are accustomed to on the terrestrial layers—necessitates larger bandwidths to compensate for and close challenging link budget factors, such as the substantial distances signals must travel, and corresponding path losses, atmospheric attenuation, and limited power availability onboard the satellite. To support widespread D2D-MSS deployment, operators will

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	need greater spectrum quantities than their terrestrial network counterparts given the substantial difference in the satellite service spot beam and terrestrial service cell site throughput and coverage capabilities in mid-band frequencies. The following example illustrates this point: • Satellite service (for each spot beam): 20-30 Mbps (approximate throughput); 1000 km^2 (approximate coverage); 0.02-0.03 Mbps/km^2 (bandwidth density) • Terrestrial service (for each cell site): 1000 Mbps (approximate throughput); 250 km^2 (approximate coverage); 4.0 Mbps/km^2 (bandwidth density) Mid-band terrestrial service has over 100x greater bandwidth density than the mid-band satellite service. Said differently, the satellite service requires more spectrum than the terrestrial service for the end user to avoid a major service quality drop-off when switching from terrestrial to satellite. Starting with 2 x 15 MHz, therefore, would ensure efficient frequency reuse, protect service quality, and avoid future capacity constraints as population growth and increasing reliance on mobile and satellite coverage demands more spectrum capacity, not less.
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? – **No.** D2D-MSS can thrive in the 2 GHz spectrum given its unique technical and regulatory attributes. From a technical perspective, the 2 GHz spectrum is mid-band MSS spectrum that has attractive propagation characteristics that allows for smaller, lower power, and lower-cost user terminals. Operating at 2 GHz provides a strong balance between signal coverage and bandwidth, allowing signals to penetrate through clouds, light foliage, and even into buildings, which is crucial for ensuring reliable connectivity for users on the move or indoors. Unlike higher frequency bands such as Ku- or Ka-band, which suffer from significant atmospheric attenuation and require precise line-of-sight, 2 GHz signals can maintain consistent performance even under less-than-ideal conditions. Additionally, this frequency is close to conventional cellular bands like LTE Band 1 (2100 MHz), making it easier to integrate with existing smartphone radiofrequency components. This compatibility minimises the need for special-

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	ised hardware, allowing standard smartphones to connect directly to satellites with minimal modification, which is essential for mass adoption. The 2 GHz band also supports efficient power use and smaller antenna designs, which are ideal for battery-powered mobile devices. It also benefits from internationally recognised allocations for MSS, ensuring a more harmonised and protected spectrum environment. Compared to lower frequencies like L-band, which offers excellent coverage but limited capacity, or higher bands like Ka-band, which offer high capacity but poor propagation, 2 GHz provides the optimal middle ground for reliable, scalable, and consumer-friendly D2D 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?	Confidentiality - Y

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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? – **No.** For D2D-MSS, there are potential technical coexistence issues with other jurisdictions, particularly due to inherent D2D-MSS operation characteristics and inconsistent global spectrum usage plans. To address this problem, global harmonisation and alignment with 3GPP standards are critical. The 2 GHz band is currently the only globally harmonised MSS allocation with corresponding 3GPP standardisation, such as Band n256 and pending Band n252. Harmonised exclusive usage rights and consistent bandwidth allocations, like 2 x 15 MHz, are necessary to minimise inter-jurisdictional interference and enable a vi-

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	able global D2D-MSS ecosystem. Examples from jurisdictions including Mexico, Brazil, and Saudi Arabia demonstrate that segmenting the 2 GHz MSS band to allow exclusive access per operator is an effective approach. This model avoids the technical and operational pitfalls of co-frequency sharing and supports a more coherent international deployment of D2D-MSS. Omnispace believes cross-border sharing is feasible as the proper regulatory and technical safeguards are currently in place. Globally, ITU filing coordination helps prevent and mitigate interference for satellite services. Further, ITU Resolution 212 (Rev. WRC-19) provides guidance to international administrations on the technical, operational, and other applicable measures in the deployment of terrestrial and satellite components of International Mobile Telecommunications for reducing harmful interference potential. Omnispace's constellation also has the technical capabilities to shape and steer its beams, allowing for both frequency and spot beam flexibility, to prevent and minimise potential interference.
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? – **No.** N/A. Omnispace is interested in using 2 GHz MSS.
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)?	Confidentiality - Y

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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? – **No.** Aligning with the EU would create clear benefits for both the types of 2 GHz MSS being authorised and the specific operators licensed. Harmonisation supports the creation of a consistent regulatory and technical environment across jurisdictions, which is especially important for D2D-MSS. Aligning with the EU would reduce the risk of cross-border interference, promote efficient spectrum use, and enhance the interoperability of devices and services. It would also provide greater certainty for investment and facilitate the development and deployment of standardised, mass-market devices that operate seamlessly across markets. In contrast, fragmentation in licensing approaches or service types could undermine service reliability, limit economies of scale, and pose technical and operational challenges due to the nomadic nature of user terminals and the impracticality of co-frequency sharing. Close coordination and alignment with the EU would help ensure robust, interference-free operation of D2D-MSS and contribute to a more effective and scalable international D2D-MSS ecosystem.
Question 12: Do you have any other points that we should consider for our consultation on future proposals?	Confidential? – **No.** N/A.