



Via Online Submission

September 19, 2025

Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA
United Kingdom

RE: Response to Call for Input on the Future Use of the 2 GHz MSS Band

To Whom It May Concern:

Kuiper Systems LLC (“Kuiper”), a wholly owned subsidiary of Amazon.com Services LLC (together, “Amazon”), appreciates the opportunity to comment on Ofcom’s call for input regarding future use of the 2 GHz Mobile Satellite Service (“MSS”) band (1980–2010 MHz and 2170–2200 MHz). Amazon’s Project Kuiper will deploy a global constellation of low-Earth orbit (“LEO”) satellites in the Ka-band to deliver affordable, high-speed broadband connectivity to unserved and underserved communities worldwide, including in the UK.

Recent technical milestones highlight how quickly the technology is advancing. Earlier this month, Amazon demonstrated that its enterprise customer terminal had achieved download speeds above 1 Gbps—a first for a commercial phased-array antenna. Amazon’s uplink performance has “generated as much excitement (if not more),” though details will be shared later.¹ These results, coupled with Amazon’s innovations in terminal design, underscore the pace at which satellite broadband is maturing and the importance of regulatory frameworks that can accommodate rapid, revolutionary progress in an industry long accustomed to incremental change.

The UK’s adoption of a forward-looking framework for the 2 GHz band can create the conditions for investment, innovation, and rapid consumer deployment by new LEO entrants, while supporting national priorities for digital inclusion and regional growth. In the attached form, we respond to Ofcom’s questions.

¹ Broadband Breakfast, Smokin’ Amazon– Project Kuiper Demos 1Gbps Download Speeds (Sept. 5, 2025), <https://bit.ly/4gnvk7l>.

Your response

Question	Your response
<p>Questions for stakeholders that are interested in using 2 GHz MSS</p>	
<p>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.</p>	<p>Confidential? – N</p> <p>The 2 GHz MSS band is well-suited to D2D services that extend satellite connectivity to standard consumer smartphones. In the near term, D2D can complement terrestrial mobile networks by filling coverage gaps for customers that live in areas unserved or underserved by terrestrial providers.¹ D2D services can also be especially valuable in emergency situations when terrestrial systems are unavailable. As device ecosystems mature and D2D features are integrated into mainstream handsets, D2D can deliver mass-market voice and data resilience, providing a redundant path when terrestrial networks are congested or impaired by weather, power outages, or other disruptions.</p> <p>D2D deployments also serve devices customers already own, which avoids the friction—and cost—of purchasing, deploying, and continuously upgrading bespoke handset hardware and software. Ofcom can lower costs and accelerate innovation by designating adequate contiguous bandwidth for MSS D2D, authorizing early non-interference operations, and aligning UK technical rules with global handset and chipset roadmaps, so that D2D becomes a standard feature rather than a niche capability for customers in the UK and for key UK sectors such as maritime, fisheries, and offshore wind.</p>
<p>Question 2: Please explain any barriers to your deployment of a service and your plans to address them.</p>	<p>Confidential? – N</p> <p>The principal barriers to scaled D2D deployment in the 2 GHz MSS band are spectrum fragmentation, burdensome terminal licensing, and uncertainty about cross-border alignment. Fragmentation into many small lots would leave operators without the bandwidth needed to deliver reliable service, complicating device design and eroding user experience. As further discussed in Amazon’s response to Question 5 below, the remedy is to structure assignments with sufficient contiguous bandwidth for credible national-scale D2D while still allowing competition.</p> <p>Further, individual licensing of the user terminals would create unmanageable transaction costs. Extending the current</p>

¹ See, e.g., *Connected Nations Update: Spring 2025*, Ofcom (May 8, 2025), <https://www.ofcom.org.uk/phones-and-broadband/coverage-and-speeds/connected-nations-update-spring-2025>.

Question	Your response
	<p>licensing exemption for MSS satellite terminals or licensing these terminals under a blanket, “light licensing regime” as Ofcom has proposed to consider, avoids that problem.²</p> <p>Additionally, uncertainty about compatibility with neighboring countries risks delaying investment. Ofcom can address that risk by ensuring that the UK rules are compatible with European frameworks without tying domestic outcomes to external timetables and by providing clear compatibility guidance.</p>
<p>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).</p>	<p>Confidential? – N</p> <p>Enabling D2D MSS services in the 2 GHz band will have the immediate benefit of laying the technical and regulatory foundation that allows D2D to mature into a mass-market service. The 3GPP standards body has already incorporated the 2 GHz MSS allocation into the global 5G NR framework.³ That standardization step is crucial because it ensures the band is defined within the same system handset vendors already use for terrestrial services. However, widespread consumer benefit depends on more up-to-date 3GPP integration and, just as important, on device manufacturers choosing to integrate support for the 2 GHz MSS band into their chipsets and handset designs. Authorizing D2D MSS services in the 2 GHz band in the UK would provide the regulatory clarity that developers and investors need to begin including support for this band in future devices. Additionally, encouraging new entry will foster competition among operators to the benefit of customers in the UK.</p> <p>The intermediate-term benefits will be deployment of D2D MSS services that provide reliability, service continuity, and connectivity redundancy at low costs. Once the 2 GHz MSS allocation is incorporated into mainstream handsets, it can deliver seamless D2D connectivity to billions of users worldwide. In the 2045 horizon, the value is not just resilience but ubiquity: reliable connectivity wherever consumers travel and whatever networks may fail. Those broader societal benefits—including the productivity, education, healthcare access, and national resilience benefits the UK Government has prioritized through its Infrastructure Strategy and emergency preparedness policies—depend on achieving global adoption of the 3GPP framework and encouraging handset manufacturers to treat D2D as a core feature, not a niche addition.⁴</p>

² See Space Spectrum Strategy, Ofcom, Sections 4.44, 5.30 (Nov. 10, 2022), <https://bit.ly/3JWzCqu>.

³ See 3GPP, *Release 17*, <https://www.3gpp.org/specifications-technologies/releases/release-17> (last visited Sept. 10, 2025).

⁴ See *UK Infrastructure: a 10 Year Strategy*, National Infrastructure & Service Transformation Authority (June 2025), <https://bit.ly/4gi1GAF>.

Question	Your response
<p>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.</p>	<p>Confidential? – N</p> <p>Amazon appreciates that a transition period will be needed to facilitate transformation of the 2 GHz MSS band. For this reason, Amazon supports a phased spectrum transition to future licensees, where 2x5 MHz blocks become available each year over a three-year period (e.g., two 2x5 MHz blocks in May 2027, two 2x5 MHz blocks in May 2028, and the final two 2x5 MHz blocks in May 2029). This approach enables new D2D entrants to launch quickly and provide increasing public benefits year-over-year, while also allowing adequate time for the phase out of any existing operations.</p> <p>For future licensees, Amazon supports a license term of 10–15 years. This provides the certainty required for sustained investment and innovation.</p>
<p>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.</p>	<p>Confidential? – N</p> <p>Amazon encourages Ofcom to adopt a band configuration that enables multiple operators, including new entrants, to provide D2D offerings to UK customers while allowing each licensee sufficient bandwidth to achieve nationwide coverage. To do so, Amazon recommends at least 2x5 MHz blocks to support core services such as voice, messaging, and entry-level data with acceptable quality. For scaled, high-capacity offerings capable of robust nationwide coverage and broadband-class performance, 2x10 MHz per licensee is advisable. Excessive sharing or segmentation of the band introduces guard-band requirements and coordination burdens that reduce usable capacity and degrade service. A licensing strategy based on a small number of adequately sized, contiguous assignments promises to produce better consumer outcomes than many smaller assignments that appear competitive in principle but cannot deliver dependable service in practice.</p>
<p>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.</p>	<p>Confidential? – N</p> <p>The 2 GHz MSS band is a sound choice for D2D services because it offers propagation characteristics and handset-antenna feasibility that make it practical for consumer devices while aligning with a globally harmonized MSS allocation. These characteristics make the band well-suited for scaled D2D deployment. The 3GPP standards body has already incorporated this band into the 5G NR framework. By anchoring the band within the same ecosystem that handset and chipset vendors already use for terrestrial services, Ofcom can help create a clear technical pathway for D2D integration into mainstream handsets.</p>

Question	Your response
	<p>The 2 GHz MSS band is by no means the only band primed for D2D operations, but ensuring that 2 GHz MSS can support D2D adds a foundational element to the mix of resources suitable and available for D2D deployment: it combines reasonable propagation with existing international recognition, and it already sits within the 3GPP framework. That combination makes the band well-positioned to reach large-scale handset adoption if regulators create the conditions for manufacturers to include it.</p> <p>The broader significance of anchoring D2D in the 3GPP framework is that it turns satellite-to-handset connectivity into a feature of a global public good. Embedding the 2 GHz MSS band in this framework means that improvements in efficiency, security, and energy performance achieved anywhere in the world flow into UK devices and networks without additional national cost. That alignment is what makes the 2 GHz MSS allocation especially important: it ensures satellite-based D2D services can benefit UK consumers as part of a larger innovation cycle that aligns with Ofcom’s duties to promote efficient spectrum use and consumer interests.</p>
<p>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?</p>	<p>Confidential? – N</p> <p>Economies of scale arise mainly from global alignment rather than any single region. Manufacturers reduce costs when band plans and channelization allow common chipsets, radio frequency front-ends, and antennas to be deployed worldwide. No specific device threshold tied to Europe determines viability. Instead, success depends on integration of D2D features into mainstream handset platforms across multiple regions. However, the UK can contribute to the success of the D2D framework by ensuring that its rules are compatible with the EU, as described in response to Question 10 below.</p>
<p>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?</p>	<p>Confidential? – N</p> <p>Coexistence depends on aligning uplink and downlink placements and managing beam patterns near borders to prevent harmful interference. Because LEO constellations use narrow, steerable beams rather than the broad footprints of geostationary satellites, the coordination zones involved are modest and manageable. Managing coexistence with adjacent jurisdictions can be addressed through standard measures such as beam-edge masks, limited power adjustments near borders, and agreed handover strategies for satellites serving cross-channel or cross-sea coverage. These are familiar tools in satellite coordination and well-suited to the physics of LEO operations.</p>

Question	Your response
	<p>An early authorization framework based on non-interference and non-protection would allow innovation to proceed while giving Ofcom flexibility to refine conditions in light of operational experience. By focusing on targeted, geographically limited coordination rather than broad restrictions, Ofcom can preserve full UK service availability while protecting neighbors from harmful interference and rapidly supporting emergency services around UK coasts.</p>
<p>Questions for stakeholders not interested in using 2 GHz MSS</p>	
<p>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?</p>	<p>Confidential? – N</p> <p>Not applicable.</p>
<p>Questions for all stakeholders</p>	
<p>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)?</p>	<p>Confidential? – N</p> <p>Some level of alignment with Europe is beneficial to avoid harmful interference and to ensure that handsets work seamlessly when UK users travel to the EU. Those cross-border interactions make rudimentary harmonization of band plans and technical parameters sensible.</p> <p>Further, it would be beneficial for the UK to develop band plans and standards that align with the EU where necessary to secure interoperability and avoid interference. By maintaining basic compatibility with its neighbors, the UK can capture the cost efficiencies and innovation cycles of the international device ecosystem while still tailoring its licensing framework to domestic priorities.</p>
<p>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?</p>	<p>Confidential? – N</p> <p>Alignment with the EU would offer some advantages to customers in the UK. It may lower device costs by ensuring manufacturers can reach more customers with a common design, speed availability of compatible handsets, simplify roaming for UK consumers who travel to the continent, and reduce cross-border interference risks. However, strict adherence to EU processes could limit the UK's ability to tailor</p>

Question	Your response
	<p>license terms or segment spectrum in ways that serve its own priorities.</p> <p>The balanced course for the UK is to pursue basic harmonization with Europe—ensuring band plans and standards align where necessary to secure interoperability and avoid interference—while exercising independent judgment over license duration, selection methods, and competition safeguards. By doing so, the UK can secure the benefits of compatibility with its immediate neighbors while using its regulatory independence to position itself as a leader in resilient, next-generation connectivity.</p>
<p>Question 12: Do you have any other points that we should consider for our consultation on future proposals?</p>	<p>Confidential? – N</p> <p>As Ofcom itself recognized in its <i>Call for Input on Improving Mobile Connectivity from Sky and Space</i> (2024), space-based D2D is still at the starting line, but momentum is building as operators worldwide announce plans for deployment. To ensure the UK helps lead the way, Ofcom should adopt rules that facilitate an orderly transition of the 2 GHz MSS band. A three-year transition period where incremental spectrum becomes available to future licensees would drive near term deployment of D2D services by new entrants as the current licensees phase out any existing operations. Just as important, this would deliver immediate public value by lighting up UK not-spots and extending mobile service to communities that need it most.</p>