

# Consultation response form

| Question                                                                                                                             | Your response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Question 1:</b> Do you agree with our assessment of the business models that could potentially emerge?                            | <p>GSOA broadly agrees with Ofcom's assessment of the potential business models for Direct-to-Device (D2D) services, particularly the emphasis on partnerships between Mobile Network Operators (MNOs) and satellite operators to deliver seamless connectivity. The wholesale-retail model, where satellite operators provide capacity to MNOs for integration into consumer offerings, is a pragmatic approach that aligns with existing market structures and ensures interoperability. At the same time use of terrestrial MS spectrum for satellite services introduces additional technical complexities and operational risks, which need a careful study while ensuring the protect incumbent services (in band and in adjacent bands).</p> <p>GSOA agrees with Ofcom that D2D can also be provided in Mobile Satellite Service (MSS) bands, and there is an existing authorisation framework in place for these services.</p> |
| <b>Question 1(a):</b> Are there any other business models that you think could deliver benefits for people and businesses in the UK? | <p>Following from Question 1 above, we encourage Ofcom to remain open to additional business models that may emerge as the technology and market mature.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Question 1(b):</b> Are there any business models that could not operate under our proposed approaches?                            | <p>While we support D2D in mobile spectrum, the UK's framework should avoid de facto privileging one model (MNO partnerships) over others (e.g. MSS-based D2D) that could</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Question                                                                                                                                 | Your response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                          | <p>also deliver consumer benefits. Futureproofing for 3GPP-standardized bands (e.g., n256) will be critical.</p> <p>Therefore, GSOA believe Ofcom's proposed framework is a positive step toward enabling D2D services in the UK, certain business models may face challenges under the current approach, particularly those that rely on flexible or non-MNO-dependent deployment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Question 2:</b> Do you agree with our assessment of the benefits that could be realised through authorisation of D2D services?</p> | <p>GSOA supports Ofcom's assessment of the transformative benefits that D2D services can deliver to the UK, including:</p> <ul style="list-style-type: none"> <li>• Ubiquitous coverage in remote and rural areas, enhancing digital inclusion across the UK.</li> <li>• Network resilience during terrestrial outages (e.g., natural disasters) as was recently observed in Iberian peninsula.</li> </ul> <p>However, while Ofcom's focus on mobile IMT spectrum is practical, it should be recognized that D2D services can be already provided in MSS bands, including globally harmonized MSS bands, which are already standardized in 3GPP for seamless device compatibility. Many of these bands are being actively used for D2D services in other markets, enabling complementary coverage alongside terrestrial networks. By ensuring the UK's regulatory approach remains open to these allocations, Ofcom can avoid fragmentation, leverage existing handset capabilities, and future-proof the ecosystem for emerging satellite-to-device technologies.</p> |
| <p><b>Question 2(a):</b> Are there any other benefits for UK citizens and businesses that could be realised?</p>                         | <p>Beyond Ofcom's identified benefits, D2D services could deliver additional advantages including enhanced global connectivity through</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Question                                                                                                                       | Your response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                | <p>seamless international roaming, cost efficiencies in rural deployments by reducing terrestrial infrastructure needs, and enabling innovation in critical sectors like agriculture, logistics and emergency response. The technology could also foster competition in wholesale markets through alternative satellite backhaul solutions while supporting the UK's space strategy leadership. A flexible regulatory approach accommodating both mobile and satellite spectrum would maximize these opportunities while ensuring interoperability and future scalability.</p>                            |
| <p><b>Question 3:</b> Do you have comments on how emerging D2D technology should support 999 service provision?</p>            | <p>GSOA strongly supports leveraging D2D technology to enhance emergency ("999") services in the UK. To maximize this critical benefit, we recommend D2D networks should be required to implement pre-emptive prioritization for emergency calls, ensuring guaranteed connectivity even during network congestion.</p> <p>Emergency calls should automatically switch between terrestrial and satellite networks based on availability, with D2D serving as a fail-safe backup in coverage gap.</p> <p>Ofcom is recommended to take appropriate measure to ensure availability of emergency services.</p> |
| <p><b>Question 4:</b> Are there any mobile spectrum bands not in scope of our proposals that you think we should consider?</p> | <p>GSOA commends Ofcom's focus on sub-3 GHz mobile service bands for initial D2D deployment. As the implementation of D2D in MS bands requires careful studies in the ITU, GSOA would recommend to limit the MS bands based on Resolution 253 (WRC-23).</p> <p>Should Ofcom consider mobile spectrum in higher bands in future consultations, it will be critical to ensure that the authorisation frame-</p>                                                                                                                                                                                             |

| Question                                                                                                                                                                                                        | Your response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                 | <p>work is underpinned by comprehensive coexistence studies. This includes protection of incumbent satellite services, which operate in and adjacent to these frequency ranges. Such studies are essential to preserving the integrity of existing space services while enabling innovation in D2D connectivity.</p>                                                                                                                                                                                                            |
| <p><b>Question 5:</b> Does deployment in supplementary downlink spectrum (SDL) present any challenges in comparison to other bands? Is there interest in deploying in this spectrum?</p>                        | <p>GSOA supports further studies before concluding on this issue.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>Question 6:</b> Do you agree with our proposal to limit this authorisation to the UK mainland and territorial waters? If not, please explain why.</p>                                                     | <p>GSOA supports Ofcom's approach to geographic scope but recommends a more nuanced framework to balance interference risks with operational and economic benefits. While limiting authorization to UK mainland and territorial waters (12 nautical miles) is pragmatic for initial deployments.</p>                                                                                                                                                                                                                            |
| <p><b>Question 7:</b> Do you agree that our proposed technical conditions for D2D satellite emissions will protect mobile services delivered by other operators in adjacent areas and in adjacent spectrum?</p> | <p>GSOA acknowledges Ofcom's approach to interference mitigation but recommends refinements to ensure robust coexistence while enabling D2D innovation, noting that further studies in the ITU are required to confirm the proposed limits.</p>                                                                                                                                                                                                                                                                                 |
| <p><b>Question 8:</b> Do you agree with our high-level co-existence assessment for other services in adjacent spectrum to D2D?</p>                                                                              | <p>GSOA agrees with Ofcom's assessment identifying 1400 MHz and 2600 MHz as higher-risk bands and its focus on protecting critical services like aviation and radioastronomy. In addition, GSOA supports coexistence studies to ensure protection of MSS systems in L (1518-1559 MHz) and S (2170-2200 MHz and 1980-2010 MHz) bands, which are adjacent to MS bands. Considering para 6.18 of the Consultation, GSOA recommends conducting detailed coexistence assessment to ensure the protection of the incumbent users.</p> |

| Question                                                                                                                                                                                                                                                                          | Your response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Question 9:</b> Are there other services co-channel or in adjacent spectrum that you think we should take into account when assessing coexistence? If so, please provide evidence of the nature of interference and what level of protection you consider is necessary.</p> | <p>GSOA does not have a strong view. However GSOA recommends that Ofcom's coexistence assessment be expanded to include several additional services that could be impacted by D2D operations, either through co-channel sharing or adjacent-band interference.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <p><b>Question 10:</b> Do you agree with our preferred authorisation approach (option 2)? If not, please set out your reasoning.</p>                                                                                                                                              | <p>GSOA supports Ofcom's preferred Option 2 (licence variation + exemption) as a practical interim solution that leverages existing MNO frameworks while maintaining regulatory oversight, but recommends key enhancements to ensure long-term effectiveness. While the approach benefits from established enforcement mechanisms through MNO licences, it should be strengthened by incorporating measures for interference mitigation. The framework should also explicitly facilitate wholesale access for MVNOs and emergency services, while including a sunset clause to automatically review and potentially transition the authorization model post-WRC-27 based on any new potential spectrum allocations.</p>                 |
| <p><b>Question 11:</b> Are there any alternative authorisation options, not discussed here, that you believe are worth considering?</p>                                                                                                                                           | <p>GSOA would like to suggest thinking about a tiered licensing framework where basic D2D services (e.g emergency messaging) operate under a light touch general authorization, while advanced services (e.g video and voice) require full licensing. Additionally, a sandbox authorization for experimental D2D use cases in non-traditional bands (e.g. new bands such as mmWave for hotspot coverage) could foster innovation while maintaining protections for incumbent users. These alternatives would complement Ofcom's existing options by providing greater flexibility for diverse use cases while ensuring robust interference management through technical safeguards like AI-driven beam steering and automated power</p> |

| Question                                                                                      | Your response                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                               | adjustment. Such forward-looking approaches would position the UK as a leader in adaptive spectrum policy for converged satellite-terrestrial networks.                             |
| <b>Question 12:</b> Do you agree with the proposed conditions?                                | GSOA supports the core principles of Ofcom's proposed conditions. GSOA supports further studies to ensure protection of existing services, including MSS services in S and L bands. |
| <b>Question 13:</b> Do you have any other comments on the proposals set out in this document? |                                                                                                                                                                                     |

Please complete this form in full and return to [mobilefromskyandspace@ofcom.org.uk](mailto:mobilefromskyandspace@ofcom.org.uk).