

The Mobile Satellite Services Association (“MSSA”) respectfully submits its comments in response to Ofcom’s consultation on “Enabling satellite direct to device services in Mobile spectrum bands” (the “Consultation”).¹ MSSA is a non-profit industry association that seeks to promote and advance the emerging direct to device (“D2D”) ecosystem and support the efforts of D2D solutions providers—including terrestrial mobile and satellite operators, original equipment manufacturers, infrastructure providers, chip vendors, and others.² 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 advance global mobile connectivity for D2D and Internet of Things (“IoT”) services via open, standards-based solutions.

MSS operators—including but not limited to MSSA members—are already utilizing existing MSS-allocated spectrum in the L and S bands to provide D2D services, including in the UK. The ability of operators to provide comprehensive coverage has been facilitated by their access to globally harmonised MSS spectrum, which can be used in accordance with the ITU’s longstanding MSS framework to manage interference risks and enable the effective use of these bands. The use of MSS spectrum for D2D has also mitigated interference risks by avoiding any need to repurpose terrestrial spectrum for satellite communications or operate on a co-frequency basis with terrestrial networks (as is the case where IMT spectrum is utilized for the provision of D2D services).

The resulting certainty and stability have enabled operators to attract capital investment and justify the substantial expenditures necessary to deploy and offer D2D services. As a result, the industry is progressing with the integration of these MSS bands into mobile phones

¹ See *Consultation: Enabling satellite direct to device services in Mobile spectrum bands* (dated 25 March 2025), here <https://www.ofcom.org.uk/spectrum/space-and-satellites/consultation-enabling-satellite-direct-to-device-services-in-mobile-spectrum-bands>.

² Additional information on the MSSA and its diverse membership of L- and S-band MSS operators, infrastructure providers, chip vendors and others can be found at <https://www.mss-association.org/> and <https://www.mssassociation.org/members>.

and operators have been able to innovate and further enhance MSS services to include D2D and related capabilities. This approach has leveraged standardised protocols and frameworks, capitalizing on 3GPP Release 17 and 18 Non-Terrestrial Networks (“NTN”) specifications, while also positioning the ecosystem for future enhancements in upcoming 3GPP releases. This approach ensures seamless connectivity across both terrestrial and satellite networks within the existing regulatory frameworks.

In contrast, the use of IMT spectrum for D2D services requires satellite operators to use spectrum already licensed and used by mobile network operators to serve their customers. As such, this approach introduces additional technical complexities and operational risks, which at a minimum require the completion of further technical studies. This approach also requires significant changes to existing regulatory frameworks to allow for uses of IMT spectrum not accommodated by existing rules and allocations and manage related interference risks and coexistence issues. Ofcom should complete necessary technical studies and use the results to propose appropriate rule and policy changes *before* proceeding to authorise D2D operation in IMT spectrum. It is also recommended that Ofcom assess the feasibility of such approach in providing a seamless user experience of D2D and IoT services.

Appended below are MSSA’s responses to the specific questions posed by Ofcom in the Consultation. We look forward to continued engagement with Ofcom with respect to these matters.

Question	Your response
Question 1: Do you agree with our assessment of the business models that could potentially emerge?	Confidential? – No MSSA is a trade association and not a service provider or network operator. As such, MSSA expresses no view with respect to potential business models that could potentially emerge in the future.
Question 1(a): Are there any other business models that you think could deliver benefits for people and businesses in the UK?	Confidential? – No MSSA is a trade association and not a service provider or network operator. As such, MSSA expresses no view with respect to potential business models that could potentially emerge in the future.
Question 1(b): Are there any business models that could not operate under our proposed approaches?	Confidential? – No MSSA is a trade association and not a service provider or network operator. As such, MSSA expresses no view with respect to potential business models that could potentially emerge in the future.
Question 2: Do you agree with our assessment of the benefits that could be realised through authorisation of D2D services?	Confidential? – No While MSSA agrees that the use of IMT spectrum to support D2D services may prove beneficial in certain respects, MSSA also believes that the ability to use IMT spectrum for this purpose is likely to be limited somewhat by co-frequency interference and the resulting need to utilize exclusion or buffer zones. These factors may make the use of IMT spectrum for D2D infeasible in some areas—with actual impacts dependent on terrestrial network cell size, terrestrial network cell density, load conditions in each cell, and other factors. In any event, the technical and regulatory challenges associated with the provision of D2D in IMT bands will be significant and require careful consideration and management to ensure the viability and effectiveness of D2D solutions.
Question 2(a): Are there any other benefits for UK citizens and businesses that could be realised?	Confidential? – No Please see the response to Question 2, above.

Question	Your response
Question 3: Do you have comments on how emerging D2D technology should support 999 service provision?	Confidential? – No MSSA agrees that improved access to emergency services is a key potential benefit of the introduction of D2D services. That said, MSSA also agrees that Ofcom should proceed cautiously and see how the market develops before mandating particular solutions with respect to emergency coverage.
Question 4: Are there any mobile spectrum bands not in scope of our proposals that you think we should consider?	Confidential? – No As noted above, MSSA believes that further technical studies (including but not limited to interference and coexistence studies) are needed <i>before</i> Ofcom authorizes any use of IMT spectrum to support D2D operations.
Question 5: Does deployment in supplementary downlink spectrum (SDL) present any challenges in comparison to other bands? Is there interest in deploying in this spectrum?	Confidential? – No MSSA notes that the 1.4 GHz (1452-1492 MHz) band segment has not been made available for SDL links in a uniform fashion in Europe. Among other things, some CEPT countries have not implemented this approach, and the spectrum block sizes assigned per operator vary.³ Ofcom acknowledges, in footnote 22 of the Consultation document, that it has not studied coexistence scenarios involving D2D and existing services in adjacent spectrum outside the UK in detail. Accordingly, MSSA believes that further ITU technical studies are needed to evaluate the potential use of other technologies before deciding the license conditions needed to protect systems in the band and in adjacent parts of the 1.4 GHz SDL band.
Question 6: Do you agree with our proposal to limit this authorisation to the UK mainland and territorial waters? If not, please explain why.	Confidential? – No MSSA agrees with Ofcom’s proposal to limit any authorisation to use IMT spectrum for D2D to the UK mainland and territorial waters. As Ofcom notes, enabling services beyond the UK’s territorial waters could increase the risk of cross-border interference as the satellite transmissions would be closer to the borders of the neighbouring countries. This approach would also help to manage interference risks that would otherwise exist with respect to terrestrial IMT operations in international waters, <i>e.g.</i> offshore platforms.

³ See online version of *ECO Report 03*, here <https://efis.cept.org/views2/report03.jsp>.

Question	Your response
Question 7: 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?	Confidential? – No As noted above, MSSA believes that further technical studies are needed to assess the potential interference and coexistence risks posed by D2D operations in IMT bands. These studies should consider the impacts of both downlink and uplink operations. The adequacy of the technical conditions proposed by Ofcom cannot be meaningfully assessed before these risks are fully understood.
Question 8: Do you agree with our high-level co-existence assessment for other services in adjacent spectrum to D2D?	Confidential? – No It is critical that Ofcom ensure that any authorized use of IMT bands for D2D avoid interference into MSS operations in the L band (above 1518 MHz) and S band (1980-2010 MHz (Earth-to-space) and 2170-2200 MHz (space-to-Earth)). At a minimum, coexistence studies are needed to better understand the potential impacts of D2D operations on MSS operations in those bands.
Question 9: 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.	Confidential? – No See answer to Question 8.
Question 10: Do you agree with our preferred authorisation approach (option 2)? If not, please set out your reasoning.	Confidential? – No MSSA supports Ofcom’s preferred authorisation approach, which (if implemented carefully and effectively) can ensure that D2D operations in IMT spectrum do not pose an interference risk to existing and planned MS and MSS services.
Question 11: Are there any alternative authorisation options, not discussed here, that you believe are worth considering?	Confidential? – Y / N

Question	Your response
Question 12: Do you agree with the proposed conditions?	Confidential? – No Please see the response to Questions 7 and 8 above.
Question 13: Do you have any other comments on the proposals set out in this document?	Confidential? – No The Consultation document acknowledges that D2D services provided using IMT spectrum and outside of any primary MSS allocation must be provided on a non-interference/non-protected basis under the International Telecommunication Union (“ITU”) Radio Regulation (“RR”) No. 4.4. But this can be difficult to enforce in practice. As a result, operations under RR No. 4.4 place other systems and services at a high risk of interference. This risk is particularly pronounced in the case of low earth orbit (“LEO”) systems operating under RR No. 4.4. Indeed, the ITU Radio Regulations Board (“RRB”) has highlighted the specific issues that may arise where LEO systems seek to use RR No. 4.4. As noted by the RRB in a report to the World Radiocommunication Conference 2023 (WRC-23) (see, WRC23/Document 50 “Report by the Radio Regulations Board to WRC-23 on Resolution 80 (Rev.WRC-07).” https://www.itu.int/md/R23-WRC23-C-0050/en): “Demonstrating conformity with the Rule of Procedure on No. 4.4 becomes very challenging when thousands of satellites could be involved. It was not clear that administrations and operators fully understood their obligations under No. 4.4 and its impact on the quality of service and capacity of their satellite system. In this context, as the risk of interference was likely increasing, more stringent regulatory provisions would be required to effectively address cases of harmful interference that originated from operations under No. 4.4 and to enforce No. 4.4 with appropriate consequences for non-compliance.” Stated differently, the opportunity for satellite-to-satellite interference is increased when LEO satellite systems offering service in terrestrial MS frequency bands operate with hundreds or thousands of satellites. Reliance by an operator on RR No. 4.4 may also raise questions about long term continuity of its IMT D2D service. Under RR No. 4.4, operations must immediately cease if they interfere with other operators. This can adversely impact the consumers that rely on that IMT D2D service, particularly when it is being offered as an emergency communications feature.

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