



Your response

Introduction

The BBC is grateful for the opportunity to offer its views on direct to device services (D2D) and Mobile-satellite services (MSS), and associated spectrum management matters. The BBC relies on various systems using MSS spectrum, about which we provide detail below. Spectrum allocated to these services is of importance to the operations of the BBC, both within the UK and overseas, and this will continue to be the case. Spectrum enables the BBC to fulfil its public purposes, such as providing impartial news and information to audiences. It allows us to report fearlessly and fairly from some of the most difficult environments across the world, and increased connectivity and resilience are important for allowing audiences to consume BBC content wherever they are as the digital transition continues. With regard to MSS systems, the BBC considers that existing exemptions for satellite mobile terminals from individual licensing supports the flexibility required to help fulfil these purposes, and that these authorisation arrangements are necessary to protect our use of systems operating in this spectrum.

Increasingly, the BBC makes use of NGSO satellite systems to provide IP connectivity. These are often used in conjunction with other communications systems (e.g. terrestrial mobile networks) to provide robust connections that may be used for broadcast-quality contribution as well as more general purpose IP connections. We expect that the use of NGSO systems will increase as these platforms mature.

Within the range 1518-1675MHz, the BBC operates licence-exempt newsgathering and outside broadcast equipment, both within the UK and internationally, to provide essential connectivity. The BBC deploys satellite phones using these frequencies to facilitate audio contributions, particularly in remote locations and disaster zones where alternative options - such as fibre or terrestrial mobile networks - are unavailable. These technologies provide a vital and immediate route-to-air as part of the BBC's coverage of breaking news, and facilitate communication with staff in an emergency, and require access to MSS spectrum with little, or no, notice.

Additionally, Broadband Global Area Network (BGAN) terminals provide IP circuits for video and audio contributions and file transfer. BGAN terminals are also used by the BBC to connect with remote international transmission sites when alternative communication methods are unavailable, such as following a natural disaster which results in the loss of critical infrastructure, and there is no other viable way to reach staff and understand whether they are safe. BGAN terminals, with uplink and downlink frequencies in MSS

spectrum, are therefore a critical tool for the BBC, particularly in areas which suffer from poor alternative connectivity.

Whilst 2010-2025MHz is not an MSS allocation, it is a secondary allocation for High Altitude Platform systems (HAPS) for base stations to provide International Mobile Telecommunications (IMT). The primary allocation of the range 2010-2025MHz is for terrestrial mobile networks and is an EU harmonised band for Programme Making and Special Events (PMSE) wireless cameras^{1,2}. It remains a vital band for wireless cameras used in content production and requires continuing protection from the introduction of HAPS.

Question	Your response
<p>Question 1: What is the market opportunity for D2D services? What is the nature of the benefits that could be delivered to people and business in the UK and what do you estimate the magnitude of the benefits to be?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 2: Are there any wider citizen or societal benefits that D2D services could deliver that the market might not deliver? What is the nature of these benefits and why might the market fail to deliver them? For example, what role could D2D have in improving the availability of 999 services in the UK?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 3: Subject to suitable regulatory frameworks being in place, do you have an interest in offering D2D services or expanding an existing service, in the UK? Which customer segments, devices and use cases would be served? Would your D2D service complement or compete with services delivered over existing mobile?</p>	<p>The BBC has no interest in offering D2D services in the UK.</p>

¹ <https://docdb.cept.org/download/4316> (The European Table of Frequency Allocations and Applications in the Frequency Range 8.3 kHz to 3000 GHz)

² <https://docdb.cept.org/download/152> (EC Decision (EU) 2016/339: Commission implementing Decision (EU) 2016/339 of 8 March 2016 on the harmonisation of the 2010-2025 MHz frequency band for portable or mobile wireless video links and cordless cameras used for programme making and special events)

<p>If you have considered launching or expanding a D2D service in the UK:</p> <p>Question 4: What technology and network architecture do you consider appropriate to use to deliver D2D services? For example, what altitude and how many HAPS, LAPS or satellites would be required to deliver an initial service?</p>	<p>Confidential? – N</p> <p>No comment</p>
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<p>We're aware that different technologies and network architectures will have different costs, performance, and spectrum efficiency trade-offs.</p>	
<p>Question 5: What capacity (e.g., Mbps/Km²/MHz) and quality of service (e.g., latency) could be delivered with the D2D service you are proposing? What percentage of the UK landmass could be covered, and would coverage be provided indoors?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 6: To inform our future policy development, which spectrum band would you like to deploy the service in? How much bandwidth would be required to provide the service at launch?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 7: What take-up profile do you assume in your planning? For example, the number of active devices, monthly calls made, and data transferred per device. What is the roadmap for enhancing your network to meet anticipated future growth? What additional infrastructure and/or spectrum would be required? When?</p>	<p>Confidential? – N</p> <p>No comment</p>

<p>Question 8: What are the use cases and the benefits these services would deliver? What technology, network infrastructure and frequencies would be required to deliver the service? What are the advantages of using this MSS spectrum compared to other bands?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 9: What current, or future, technology developments will offer the opportunity for more efficient use of MSS spectrum? E.g., more spectrally efficient, or greater ability to share spectrum.</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question</p>	<p>Your response</p>
<p>Question 10: Could your existing, or proposed, service coexist with other users of the same frequencies within the MSS spectrum bands? If so, how is coexistence achieved? If not, please explain why sharing is not possible.</p>	<p>Digital Enhanced Cordless Telecommunications (DECT) systems are widely used for PMSE production communications and share spectrum with MSS in the range 1880-1900MHz. Changes to existing, or additional, MSS services in this range must remain compatible with both DECT and existing MSS systems.</p>
<p>Question 11; Do you expect D2D services to be available prior to WRC-27? What services and benefits do you think an authorisation prior to WRC-27 might bring to UK consumers and businesses?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 12: Are there any mobile bands that should be prioritised for satellite based D2D?</p>	<p>Confidential? – N</p> <p>No comment</p>

<p>Question 13: Are there existing systems that you consider could be subject to an increased risk of harmful interference from the introduction of satellite based D2D using mobile bands? If yes, are there specific mobile bands that you consider should be avoided to reduce this risk?</p>	<p>Confidential? – N</p> <p>No comment</p>
<p>Question 14: Do you have any views on how spectrum for D2D services should be authorised? Does this vary by band, or type of NTN? Please explain the reasoning behind your preference.</p>	<p>The BBC values the existing licensing exemptions for BGAN terminals and satellite phones, which allows the rapid deployment of these systems. Any new authorisation arrangements should maintain this existing flexibility, which reflects the ECC Decision³ to exempt satellite mobile terminals, operating under the control of satellite networks, from individual licensing.</p>
<p>Question 15: Are there any other points that you think would be useful in our</p>	<p>Confidential? – N</p> <p>No comment</p>

Question	Your response
<p>considerations? In providing your response, please provide as much evidence as possible.</p>	

Please complete this form in full and return to mobilefromskyandspace@ofcom.org.uk

³ <https://docdb.cept.org/download/3718> (ECC Decision (12)01: Exemption from individual licensing and free circulation and use of satellite mobile terminals operating under the control of networks in the range 1 to 3 GHz).