Your response

Question	Your response
Question 1: Do you have comments on the overall approach to the review?	Confidential? – N Federated Wireless Inc. (Federated Wireless) hereby submits comments in response to Ofcom's consultation, entitled "Supporting the UK's wireless future – Our spectrum management strategy for the 2020s," and its interest in ensuring that, "a wide range of electronic communications services are available across the UK, and that optimal use is made of radio spectrum." Federated Wireless fully support Ofcom's goals and commends Ofcom for its recognition of the importance of promoting flexibility and innovation in the use of spectrum. Given our experience in implementing dynamic spectrum sharing in the 3.5 GHz and 6 GHz bands in the United States, we offer our perspectives on how Ofcom can leverage existing automated spectrum management tools and technology to achieve its goals. We share Ofcom's view that there is will be a growing demand for localized access to spectrum by entities that want to deploy private networks in support of a wide range of services, including industrial IoT applications, rural broadband connectivity via neutral host, smart city deployments, smart agriculture, healthcare, education, etc. We also agree that adopting different geographic authorization approaches in the same or adjacent bands is a good way to address this demand. We recommend that Ofcom also consider adopting an equipment interoperability requirement, such as the one in the U.S. CBRS rules, for bands that have multiple licensing approaches to drive equipment economies of scale so that licenses with smaller geographic areas are not disadvantaged.

	Furthermore, Federated Wireless urges Ofcom to consider licensing approaches that enable opportunistic (license by rule) use of both new bands as well as previously licensed bands. Rather than requiring users to apply for a first-in-time right to a specific geographic area, as Ofcom's current local area licensing rules permit, the use of an automated dynamic sharing database solution would permit users to "right-size" their spectrum demands - requesting access to the exact amount of spectrum in the exact geographic area that they need. So long as that access will not impair other licensed users, the request can be granted within a matter of minutes. However, if the request would impair the use of spectrum by either another licensed user or a pre-existing opportunistic user, the dynamic sharing system can offer alternatives and/or find ways to enable co-existence amongst opportunistic users. This opportunistic access approach is currently being implemented in the U.S. CBRS band where hundreds of different users are deploying a wide variety of systems, including public mobile services and private networks – all in the same frequencies and without the need for geographic area specific licenses. To date, there have been over 100,00 base station deployments in first year of the CBRS commercial service, demonstrating both the pent-up demand for spectrum access and the benefits of an automated approach to the management of the spectrum. In the coming months, Federated Wireless will also be introducing an automated approach to secondary market leasing of spectrum. The U.S. CBRS rules allow Spectrum Access System (SAS) administrators to implement a streamlined process for licensees of CBRS spectrum to offer access to unused spectrum on a leased basis. Federated Wireless has developed a "Spectrum Marketplace" for CBRS license holders to lease their unused spectrum assets more efficiently and for users to find spectrum to meet their needs more efficiently. We often refer to this capability as the "Airbnb" for spectrum. And, just like Airbnb and similar platforms have revolutionized the real estate

	and hospitality industries, we believe the use of automated spectrum sharing database systems will revolutionize how spectrum is leased and accessed for a variety of new use cases. Ofcom has noted the advantages of an automated approach to its shared access rules but has expressed concerns about the cost and complexity associated with the technology. Federated Wireless believes an automated approach has numerous advantages that outweigh the costs, namely: 1) speed of implementation; 2) less bureaucracy and more business certainty; 3) a vibrant innovative ecosystem; 4) greater efficiency in the use of spectrum; and 5) future-proof (meaning it can be adjusted quickly and easily to accommodate future needs). As mentioned above, the success of the CBRS band in the United States demonstrates how quickly spectrum can be put to use on a nationwide basis by hundreds of different users by leveraging cloud-based technology and automation. Similarly, the planned use of an automated database solution for the U.S. 6 GHz band demonstrates how this technology can be simplified when circumstances warrant. The Automated Frequency Coordination (AFC) system that will be implemented in the 6 GHz band is significantly less complex than the CBRS SAS. Given that the incumbent use of the 6 GHz band is predominantly fixed and there is sufficient spectrum available on a shared basis to enable more "conservative" calculations of incumbent protections, the AFC database solution was designed in a way that reduces both cost and complexity. Nonetheless, the same underlying technology is the basis for both the SAS and the AFC, and it can be readily applied to other bands and sharing situations. Furthermore, the costs associated with an automated shared access solution are subject to competitive forces. Federated Wireless believes that there will be several different business models that shared access solution providers can pursue that will differ based on market demands, use cases, etc. These models could include one-time fees embedded in the price of a device, recurring monthly or annual

	per-device fees charged to an end-user or to a network operator, or fees combined with other spectrum planning and consultation services. Providing prospective automated database system administrators with flexibility on their business models should ensure that competitive approaches develop that will lead to greater innovation, greater choice, and lower costs. In conclusion, Federated Wireless recommends that Ofcom implement as soon as possible an automated shared access approach that enables both licensed and opportunistic access to spectrum. Dynamic sharing technology is available today from multiple vendors. It can be readily adapted to meet the unique challenges of the U.K. market and assist Ofcom in meeting its spectrum management goals.
Question 2: Have we captured the major trends that are likely to impact spectrum management over the next ten years?	Confidential? – Y / N
Question 3: Could any of the future technologies we have identified in Annex 6, or any others, have disruptive implications for how spectrum is managed in the future? When might those implications emerge?	Confidential? – Y / N
Question 4: Do you agree that there is likely to be greater demand for local access to spectrum in the future? Do you agree with our proposal to consider further options for localised spectrum access when authorising new access to spectrum?	Confidential? – Y / N
Question 5: Do you agree with the actual and perceived barriers identified for innovation in new wireless technologies, and our proposed ways of tackling those?	Confidential? – Y / N
Question 6: Do you agree with Ofcom's proposals to improve our outreach and reporting activities, and spectrum information tools? • **Are there additional ways that Ofcom could better engage with existing and**	Confidential? – Y / N

future users and providers of wireless communications? • **Please explain any specific areas where you believe more or better provision of information could provide value to stakeholders**	
Question 7: Do you agree that it is important to make more spectrum available for innovation before its long-term use is certain? Do you have any comments about our proposed approach to doing this?	Confidential? – Y / N
Question 8: Do you agree that it is important to encourage spectrum users to be 'good neighbours' to ensure more efficient use of the spectrum? Do you agree with our proposals to: **a) increase realism in coexistence analysis at a national and international level?** **b) encourage spectrum users to be more resilient to interference?** **c) ensure an efficient balance between the level of interference protection given to one service and the flexibility for others to transmit?** **Do you have any comments on which of these will be the most important?**	Confidential? – Y / N
Question 9: Are there any other issues or potential future challenges that should be considered as part of this strategy?	Confidential? – Y / N
Question 10: Do you agree that continued use of our existing spectrum management tools (as set out in sections 4-7) will be relevant and important for promoting our objectives in the future, in light of future trends?	Confidential? – Y / N
Question 11: Is there anything else we should be considering doing, or doing differently, to promote our objectives?	Confidential? – Y / N