

Your response

Question	Your response
<p>Question 1: (Section 2) Do you have any comments on our assessment of potential use cases, demand and deployment strategies for new uses of mmWave spectrum?</p>	<p><i>Is this response confidential? – No</i> We agree with the assessment that mmWave spectrum deployments would be concentrated in densely populated and built-up areas with high demand for data. We expect that there is a need to adopt new network sharing and ownership models via neutral hosts in order to be able to deliver the scale of densification required and at the right price point.</p>
<p>Question 2: (Section 2) Do you have any comments on our proposed overall approach to mmWave spectrum (including our aim to make the 26 GHz and 40 GHz bands available for new uses on the same or similar timeframe)?</p>	<p><i>Is this response confidential? – No</i> Whereas the device ecosystem is more mature at 26 GHz band we understand the benefits of making both 26 GHz and 40 GHz bands available on a similar timeframe.</p>
<p>Question 3: (Section 3) Do you agree with our approach of specifying high and low density areas in the UK, and authorising new uses differently in those areas?</p>	<p><i>Is this response confidential? – No</i> Yes.</p>
<p>Question 4: (Section 3) Do you agree with our overall authorisation approach in high density areas for the 26 GHz band (i.e. to grant Shared Access licences on a first come, first served basis for the bottom 850 MHz of the 26 GHz band, (24.25-25.1 GHz), and to auction citywide licences for the rest of the 26 GHz band (25.1-27.5 GHz))?</p>	<p><i>Is this response confidential? – No</i> Among the CEPT countries that have made 26 GHz band available, Germany allows local licences and Finland has a hybrid scheme (local and nationwide assignments). We consider the approach proposed by Ofcom to be very good in having the maximum assignment size being citywide rather than national.</p> <p>Considering the densification required at mmWave bandwidths and achieving cost effective deployment, neutral host networks could be encouraged for the citywide licences. This approach would help in making optimal use of the spectrum.</p>
<p>Question 5: (Section 3) Do you agree with our overall authorisation approach in low density areas for the 26 GHz band (i.e. to grant Shared Access licences on a first come, first served basis)?</p>	<p><i>Is this response confidential? – No</i> We believe that having access to specific spectrum bands creates opportunities for smaller operators to deploy innovative radio networks supporting new, high-quality services, particularly tailored to private businesses, enhancing capacity and improving coverage, including, where the existing operators wish,</p>

	<p>MNO access on a neutral host basis. The effect can be to facilitate rapid deployment of radio infrastructure supporting development of new businesses, while improving experience for consumers using existing services within, for example, campus or business park environments.</p> <p>However, to allow our business to invest and to realise the opportunities for significant advancement in the use of limited spectrum we need access to such spectrum through a process that more closely matches our business needs than the current “Shared Access” process. In particular:</p> <ul style="list-style-type: none"> • We need to be able to understand the existing licensed radio environment at and around a particular site rapidly and accurately. • Be able to quickly confirm whether predicted interference to/from other users is going to prevent a licence being available. • Identify steps that can be taken to reduce interference to workable levels, such as deploying directional antenna, and have those steps recognised. • Be able to reserve licences across a site over a sensible timescale to facilitate the roll out of large site projects with the confidence needed for investment. <p>In our experience the current “Shared Access” process fails to meet these business needs.</p>
<p>Question 6: (Section 3) Do you agree with adopting a similar approach to authorising the 40 GHz band as our proposals for the 26 GHz band, if we were to decide to re-allocate the 40 GHz band?</p>	<p><i>Is this response confidential? – No</i></p> <p>We don’t quite understand why Ofcom considers reserving the entire 3 GHz available in the 40 GHz band for citywide licenses and provides no local access in densely populated areas. If this band were to be re-allocated, we would see a benefit in that it would provide similar local access mechanisms that would allow smaller operators to pursue opportunities in densely populated areas.</p>
<p>Question 7: (Section 4) Do you agree with our proposed methodology for identifying and defining high density areas?</p>	<p><i>Is this response confidential? – No</i></p> <p>In principle we agree.</p> <p>Considering that a lot of data traffic takes place indoors over WiFi, it is not evident that the highest peak hour mobile data (on a given base station site) gives an accurate estimate.</p>

	Nevertheless, the pattern would probably be similar and the same areas of cities would emerge as the busiest.
Question 8: (Section 4) Do you agree with our proposed cut-off point of 40 high density areas?	<i>Is this response confidential? – No</i> We don't have an opinion on the proposed cut-off point.
Question 9: (Section 5) Do you agree with our proposal to clear the fixed links in and around high density areas from the 26 GHz band?	<i>Is this response confidential? – No</i> No comment.
Question 10: (Section 5, Annex 8) Do you agree with our estimates of the cost of migrating fixed links into alternative spectrum bands?	<i>Is this response confidential? – No</i> No comment.
Question 11: (Section 6) Do you agree with the proposed approaches we have outlined to manage coexistence between new 5G users and the different existing users in the 26 GHz band? In particular, do you have any views on our proposals to limit future satellite earth stations in this band to low density areas only, and to end access to this band for PMSE users with five years' notice?	<i>Is this response confidential? – No</i> Our experience coordinating with Earth Stations in C Band suggests that there could be benefit to the industry if a more sophisticated approach were taken rather than just blocking new earth station locations within the "high density areas" identified in the consultation. Our experience, admittedly in a different band, has been that earth stations can give rise to restrictions on deployments in areas where there is unforeseen demand, some quite remote. An approach that looked in more detail at the potential opportunity cost for mmWave deployment has the potential of allowing earth stations to be located nearer high density areas where the topography allows while avoiding unnecessary restrictions on base station deployments in areas where there are business opportunities, for example businesses clustered at science parks in relatively remote area. As an example, Harwell is mentioned in the consultation document with a suggestion that restrictions could extend up to 20Km around that earth station, stating that the impact in this area was unlikely to be material. Looking at a map 20Km zone around

	<p>Harwell could restrict mmWave deployment across Abingdon, part of the city of Oxford as well as the extensive, advanced technology, science parks both at Harwell itself and at the nearby Culham where Dense Air holds 3.8GHz licences. The Harwell earth station is, of course, extant, but if future earth station locations took into account protection afforded by the local topography, such as is, to some extent, enjoyed by the Whitehills earth station north of Oxford, it is likely that future restrictions due to new earth stations could be reduced.</p> <p>We urge Ofcom to consider a more sophisticated approach to licencing future earth stations which examines the potential impact on mmMave deployment than is being suggested. An approach that looks at the footprint of the associated restriction zone taking into account topography and earth station pointing angles, and then looks at the business opportunity within the potentially restricted area could allow more optimal use of the mmMave spectrum by all parties.</p> <p>As a related issue it is important that Ofcom maintain up to date records of the actual spectrum in use at the earth stations. Out of date records have created considerable deployment problems in the past in the 3.8GHz band which have taken many months to resolve.</p>
<p>Question 12:(Section 7) Do you agree with our initial assessment on which option for enabling the 40 GHz band for new uses would best achieve our objectives?</p>	<p><i>Is this response confidential? – No</i> Option 2 would clearly best achieve the objectives of promoting efficient allocation, investment, and innovation.</p>
<p>Question 13: (Section 7, Annex 8) Do you agree with our analysis of the impact on existing 40 GHz licensees, including our estimates of the cost of moving fixed links under the options involving revocation (options 2, 3 and 4)?</p>	<p><i>Is this response confidential? – No</i> No comment.</p>

<p>Question 14: (Section 8) Do you have any comments on our high-level Shared Access proposals (including technical and non-technical licence conditions and proposed approach to setting fees)?</p>	<p><i>Is this response confidential? – No</i> See response to question 5. In particular, we would like to know why Ofcom considered the option of self-defined areas (by the applicant?) as not practicable.</p>
<p>Question 15: (Section 8) Do you agree with the overall approach we have set out to coordination and coexistence between new Shared Access users in the 26 GHz band and existing users?</p>	<p><i>Is this response confidential? – No</i> Previously Ofcom has indicated that due to the small number of Shared Access licences at 3.8-4.2 GHz band, doing the coordination manually (by a human being) is sufficiently fit-to-purpose. We question whether the manual coordination will be applicable at 26 MHz and 40 MHz bands beyond 2024, or whether more automated approach should be considered.</p>
<p>Question 16: (Section 9) Do you have any comments on our initial thinking in relation to auction design?</p>	<p><i>Is this response confidential? – No</i> No comment.</p>
<p>Question 17: (Section 10) Do you have any comments on the licence duration options we have considered in this section for new licences for the 26 GHz and 40 GHz bands that we would auction?</p>	<p><i>Is this response confidential? – No</i> No comment.</p>
<p>Question 18: (Section 11) Do you agree with our assessment of potential competition concerns and that it may be appropriate to impose a competition measure such as a ‘precautionary cap’?</p>	<p><i>Is this response confidential? – No</i> No comment.</p>

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