

## Consultation response form

### Your response

Note: question numbers are aligned to relevant sections in the call for inputs document. As such, there is no question 1.

<p><b>Question 2.1: What are your planned timelines for commercial availability of network equipment and devices for the 26 GHz band? When will equipment for testing and trials be available? Please specify the specific mmWave tuning ranges supported and their timing.</b></p>	<p>No comment</p>
<p><b>Question 2.2: Given the 3GPP studies into NR-based operations in licence-exempt spectrum, when (if ever) do you expect to support licence exempt operation and/or coordinated sharing in the 26 GHz band in your products?</b></p>	<p>No comment</p>
<p><b>Question 2.3: When do you expect to support standalone New Radio in the 26 GHz band in your products?</b></p>	<p>No comment</p>
<p><b>Question 3.1: Are there any other aspects related to the existing use of 26 GHz not covered in this CFI that you believe need to be considered?</b></p>	<p><b>Question 3.1: Are there any other aspects related to the existing use of 26 GHz not covered in this CFI that you believe need to be considered?</b></p> <p>Yes.</p> <p>Background information</p> <p>The Amateur radio service is a legitimate, primary, user of the frequency range 24.000 to 24.050GHz.</p> <p>This frequency range is used for very weak signal millimeter wave operation within the ‘tail’ of the 22GHz water vapour absorption band. Techniques have been developed to allow terrestrial ranges up to 300km from fixed (home) and from portable hill locations using power levels of typically 2W to 30cm diameter dish reflector antennas. Earth-moon-Earth communications allows global coverage. Anomalous propagation allows international terrestrial communications to</p>

ranges of 800km.

As the lowest frequency amateur radio service primary allocation above 144MHz, it attracts interest from many radio amateurs as an interference-free weak signal allocation.

The **UK Microwave Group** proposes:

- 1) That 5G services operate only in the band 25.25 – 27.5 GHz to provide extra frequency separation between the 5G 26 GHz band and the weak signal amateur service for the reasons cited below.
- 2) That the 5G out of band emissions are adequately regulated to properly protect sensitive amateur applications in the near adjacent frequency bands.

Comments:

- There are sensitive services just below the 24.25 – 27.5GHz band and the **UK Microwave Group** highlights particularly the primary allocation to the amateur and amateur satellite services in 24 to 24.05 GHz. Amateurs work with very weak signals in this frequency band.
- The **UK Microwave Group** is aware that 5G services plan to utilise very wide channel widths and that out of band emission levels will be spread across the amateur and amateur satellite service allocation. The top edge of amateur and amateur satellite service allocation lies only 200MHz below the bottom 5G band edge.
- The **UK Microwave Group** believes that if not properly filtered, widespread digital services have the potential to degrade the radio environment (noise

	<p>floor) for the reception of narrow band weak signal amateur transmissions in the 24 GHz range.</p> <ul style="list-style-type: none"> <li>The utility of the bands for amateur experimentation and operation will be degraded as a result.</li> </ul> <p><b>Further Bands for 5G:</b></p> <p>The <b>UK Microwave Group</b> is against the allocation of the amateur radio service primary allocation at 47-47.2 GHz for 5G. This frequency range is used for weak signal communications including global Earth-Moon-Earth communications. Interference from adjacent and co-channel digital systems have the potential to interfere with this communications and curtail further development of techniques unless 5G systems operating in adjacent allocations are adequately filtered.</p>
<p><b>Question 3.2: What options for the existing services in the 26 GHz band do you believe need to be considered to allow for the introduction of new 5G services? Please give as detailed a response as possible along with all relevant information and explain how you would see any potential option you provide working in practice.</b></p>	<p>No comment</p>
<p><b>Question 3.3: Should a moratorium be placed on issuing new licences in the 26 GHz band for existing services? E.g. to ensure that the 26 GHz band is not unnecessarily encumbered prior to the development of a new authorisation / licensing approach for 5G services?</b></p>	<p>No comment</p>
<p><b>Question 4.1: What service would be delivered and to which consumer and/or organisations?</b></p>	<p>No comment</p>
<p><b>Question 4.2: Where in the UK would the 26 GHz spectrum be used to deliver services? For example, will deployments be focussed on:</b> a) Areas of existing high mobile broadband demand?</p>	<p>No comment</p>

<p>b) Rural areas?  c) Rail and road corridors?  d) Specific types of enterprise or industrial sites?  e) Indoors or outdoors?  f) Specific nations or regions of the UK?</p>	
<p><b>Question 4.3: Where 5G cells are deployed, are they expected to be individual cells or as clusters of cells required to give wider areas of contiguous coverage? What would be the area of a typical contiguous coverage cell cluster?</b></p>	No comment
<p><b>Question 4.4: What capacity and bandwidth (i.e. Channel Bandwidth in MHz) would be required at each cell to meet initial capacity requirements? How will this change over time?</b></p>	No comment
<p><b>Question 4.5: What quality of service is required? How sensitive is the service being offered to variations in radio interference from other operator's 5G cells and other spectrum users?</b></p>	No comment
<p><b>Question 4.6: Will end users be fixed or mobile?</b></p>	No comment
<p><b>Question 4.7: What are the characteristics of 5G at 26 GHz which make this band particularly suited to the service you plan to deploy? What other spectrum bands could be used as an alternative, or in preference to, the 26 GHz band? To what extent could carrier aggregation and other techniques reduce your reliance on 26 GHz?</b></p>	No comment
<p><b>Question 5.1: Should Ofcom consider licencing options other than the 3 examples set out above (licence exempt, shared coordinated and area defined) for the 26 GHz band? If so, what other options do you consider should be included?</b></p>	No comment
<p><b>Question 5.2: What methodologies could be used to pre-define 'high demand areas' for area defined licences?</b></p>	No comment
<p><b>Question 5.3: What mechanism could be used to coordinate cell deployments by different operators in shared spectrum?</b></p>	No comment
<p><b>Question 5.4: What methodologies could be used for determining the proportion of spectrum to allocate using area defined licences and coordinated deployment?</b></p>	No comment

**Question 5.5: Do you agree that the 26 GHz band should be released progressively? What risks do you envisage with such an approach and how can these be best mitigated?**

No comment