Consultation response form

Your response

The Met Office is the UK's National Meteorological Service with critical national responsibilities for public weather services, including severe weather warnings and civil contingencies activities. Our ability to deliver these responsibilities relies on the use of different parts of the spectrum; for example to enable the use of satellite information and weather RADAR. It is in this context that we reply to this consultation.

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

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.	*The Met Office offers no opinion on this issue.*
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?	*The Met Office offers no opinion on this issue.*
Question 2.3: When do you expect to support standalone New Radio in the 26 GHz band in your products?	*The Met Office offers no opinion on this issue.*
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?	*The downlinks of data at 26GHz from Metsat missions to key sites across Europe, including Darmstadt and Usingen (Germany), Svalbard and Tromso (Norway) and Fucino (Italy), are required for the new generation of polar orbiter and geostationary meteorological satellites. These missions will continue to be launched well into the 2020's and as such, it is vital to ensure that European wide collection of data from these platforms is recognized and protected accordingly within the UK and Europe. Whilst there is no direct collection of data from satellites at Met Office HQ in Exeter (we receive products via terrestrial means and also at other frequencies though the EUMetCast at Ku band); without these key sites, then no onward data and products would be*

	available to the Met Office in the UK. Similarly the Harwell site in Oxfordshire needs to be protected to allow the capture of other environmental data from the Sentinel satellites, some of which are already in orbit.
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.	*The Met Office offers no opinion on this issue.*
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?	*This would seem like a pragmatic approach at this stage to avoid duplication of effort in future and having to accommodate such uses elsewhere within the Spectrum.*
Question 4.1: What service would be delivered and to which consumer and/or organisations?	*The Met Office sees potential in the exploitation of 5G services, for example, in order to facilitate the collection of massive amounts of environmental data from 'Internet Of Things' devices. This data could, in turn, help in verifying extreme weather events as well as possibly contributing to initiating numerical weather prediction models in future.*
Question 4.2: Where in the UK would the 26 GHz spectrum be used to deliver services? For example, will deployments be focussed on: **a) Areas of existing high mobile broadband demand?** **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?**	*The Met Office offers no opinion on this issue.*
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?	*The Met Office offers no opinion on this issue.*
Question 4.4: What capacity and bandwidth	*The Met Office offers no opinion on this*

(i.e. Channel Bandwidth in MHz) would be required at each cell to meet initial capacity requirements? How will this change over time?	*issue.*
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?	*The Met Office offers no opinion on this issue.*
Question 4.6: Will end users be fixed or mobile?	*The Met Office offers no opinion on this issue.*
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?	*The Met Office offers no opinion on this issue.*
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?	*The Met Office offers no opinion on this issue.*
Question 5.2: What methodologies could be used to pre-define 'high demand areas' for area defined licences?	*The Met Office offers no opinion on this issue.*
Question 5.3: What mechanism could be used to coordinate cell deployments by different operators in shared spectrum?	*The Met Office offers no opinion on this issue.*
Question 5.4: What methodologies could be used for determining the proportion of spectrum to allocate using area defined licences and coordinated deployment?	*The Met Office offers no opinion on this issue.*
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?	*The Met Office would favour 'sharing' rather than 'release' of the 26GHz band such that existing key sites across Europe and at Harwell can continue to make full and unaffected use of the band (i.e. with appropriately agreed exclusion zones to avoid any increases in interference). A phased approach to sharing is favoured as this allows the incumbent users the opportunity to verify any mitigation techniques which may have been proposed to avoid interference.*