

UK Spectrum Policy/ Spectrum Management

24 Feb 15

For: Ofcom

MOD RESPONSE TO THE SPECTRUM ABOVE 6 GHz FOR FUTURE MOBILE COMMUNICATIONS – CALL FOR INPUT

Reference:

A. Ofcom above 6 GHz for future mobile communications call for input dated 16 Jan 15.

The MOD responses to the call for input at Reference A is provided against each question below. MOD notes that this consultation is more relevant to the UK communications industry and therefore, for the majority of the questionnaire we have no comment to make. However, where we consider it prudent we have provided comments.

Question 1: Are there practical ways of achieving the very high performance that use of wide channels above 6 GHz could offer, for example using carrier aggregation of lower frequency bands?

No comment.

Question 2: What recent or emerging advances in technology may provide effective solutions to the challenges in higher frequency bands? For example can increased propagation losses be mitigated by using the high gains available with massive MIMO?

No comment.

Question 3: Are there any fundamental/inherent frequency constraints of the 5G technologies currently being investigated with regard to:

a) minimum contiguous bandwidth per operator? Will the spectrum for multiple operators need to be contiguous (i.e. a single band) or could multiple operators be supported through multiple bands?

No comment.

b) frequency range over which the technologies are expected to be able to operate, for example due to propagation, availability of electronic components, antenna designs and costs of deployment? For example, is 10-30 GHz better or worse than 30-50 GHz and why?

No comment.

Question 4: Will 5G systems in higher frequency bands be deployed, and hence need access to spectrum, on a nationwide basis or will they be limited to smaller coverage areas? And if so, what sort of geographic areas will be targeted?

Any national coverage would need to be assessed against MOD use as there may, potentially, be interference issues with MOD radiocommunications systems.

Question 5:

a) To what extent will 5G systems in higher frequency bands need dedicated spectrum on a geographical and/or time basis or can they share?

No comment.

b) If they can share, what other types of services are they likely to be most compatible with?

Note, when assessing compatibility against other types of service, all MOD systems will need to be considered. This includes: satellite, radiolocation, radiodetermination, fixed and mobile data link systems.

c) What technical characteristics and mitigation techniques of 5G technologies could facilitate sharing and compatibility with existing services?

No comment.

d) Could spectrum channels be technically shared between operators?

No comment.

Question 6:

a) Given the capacity and latency targets currently being discussed for 5G how do you anticipate backhaul will be provided to radio base stations? Are flexible solutions available where the spectrum can be shared between mobile access and wireless backhaul?

No comment.

b) What, if any, spectrum will be required? What channel sizes will be needed? Will the bands used be similar to those currently used for wireless backhaul?

No comment.

Question 7: Should we expand the scope of bands being reviewed beyond the 6-100 GHz range?

The WRC 15 future agenda item calls for the identification of band between 6 and 100 GHz. There is a call from incumbent users in this frequency range for better clarity on the frequency bands to be considered, so expanding the range further would need robust justification at this stage.

Question 8: Do you agree that it is likely to be necessary for bands to have an existing allocation to the mobile service? Does this need to be a primary allocation?

No comment.

Question 9: Do you agree with the criteria we have used for our initial filter of bands, and are there other criteria that could also be used?

No comment.

Question 10: Of the spectrum bands/ranges mentioned in this section, are there any that should be prioritised for further investigation?

No comment.

Question 11: Are there any bands/ranges not mentioned in this section that should be prioritised for further investigation? If so, please provide details, including why they are of particular interest.

No comment.

Questions 12: Are there any particular bands/ranges that would not be suitable for use by future mobile services? If so, please provide details.

Of the “filtered bands” listed for consideration at Reference A. MOD has responded, to the Strategic Review of Satellite and Space Science Services, detailing its current and proposed satellite frequency use.

Question 13: What additional information, beyond that given in Annex 5 would be useful to allow stakeholders to develop their own thinking around spectrum options?

See our answer to Q 12.

Question 14: What are the most important criteria for prioritising bands going forward?

In considering prioritising specific bands, account must taken of existing spectrum users and in particular MOD spectrum use which varies from commercial use, in those bands under consideration. Defence spectrum use is a key factor of our national security whilst underpinning industrial/commercial growth.

Electronically signed

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