Civil Aviation Authority

Additional comments:

The CAA intends to carry out studies in support of the work on frequency bands that have already been proposed where UK aviation operate systems in or adjacent too the propsoed frequency band. Todate those would include 1300-1350, 2700-2900 & 5350-5470 MHz.

Question 1: How much do you expect UK mobile data demand to change in the period 2015-2030? Please provide evidence for the trend and, where possible, please indicate how demand might vary across the device categories listed in paragraph 4.7. How should we account for factors (including pricing) that would constrain demand?:

Whilst the CAA is not in a position to comment on the trends we support Ofcom's requirement for evidence to be provided that support the trends proposed.

Question 2: What evidence do you think is relevant to assessing the extent of consumer benefits associated with meeting the increase in demand for mobile data?:

The evidence needs to identify the approtionment between buisness and leisure use taking into account the value to the downstream market(s) which would otherwise have have not been generated. Additionally an understanding as to whether that use is essential or merely casual use that is filling in time.

Question 3: What proportion of mobile data traffic do you expect to be carried over (a) Wi-Fi and similar systems in licence-exempt spectrum and (b) mobile networks in licensed spectrum? How do you expect this to change over the period 2015-2030 and how do you expect total data demand for Wi-Fi and similar systems in licence-exempt spectrum to change over the same period? How might this vary by location, environment etc.?:

The CAA does not have any evidence on which to judge the extent to which the proportion of traffic would be carried in licence exempt or licenced spectrum. However it would appear to be logical given a shortage in spectrum that the mix is optimised for capacity, re-use distance and ability to offload to a cabled/fibered backbone.

Question 4: What factors will act to change the spectral efficiency of mobile technologies in the future? What spectral efficiency values are appropriate for consideration in our study for the period 2015-2030?:

Efficiency in it's broadest sense relates to the actual throughput of a system for a given sterilised bandwidth (including guard bands etc) and geographic area. Factors that will change this spectral efficiency are improvementst the modulation efficiency, interference/adjacent band rejection, load factors and the trade off between these factors of a system. The CAA would suggest the use of a spectral effiiency value in the top 5% of those currently available.

Question 5: What service bit rate values are appropriate for consideration in our study for the period 2015-2030? What evidence do you have of changing needs for service bit rates?:

Not apropriate for the CAA to comment

Question 6: What proportion of traffic do you consider should be assumed to be carried on each cell types for the period 2015-2030? How will this vary with service environment i.e. between home, office, public areas, rural, suburban and urban? What evidence do you have of the factors affecting the uptake of small cells in licensed spectrum in the future?:

Not apropriate for the CAA to comment

Question 7: Given the current mix of services on cellular networks what is the ratio of downlink to uplink capacity currently dimensioned for and how would you expect this to change over time by 2015, 2020, 2025 and 2030? How do you expect the ratio of downlink to uplink demand to vary for the service categories given in Table A5.4 of Annex 5, and what factors might affect this? How does this ratio of downlink to uplink capacity change (if at all) with network radio access technology and offload to licence-exempt systems?:

Not apropriate for the CAA to comment

Question 8: What are your views about the pros and cons of the frequency ranges in Table A6.1 in Annex 6 for mobile broadband and for existing applications using this spectrum? Do you have views on other bands that are not in Table A6.1?:

The CAA propose any pros or cons at this stage due to the lack of firm conclusions from current studies. However we do believe that all bands are potential candidates and open to study, including adjacent band issues, and that a decision as to the appropriateness of any frequency band should be made on the results of the technical studies taking into account current use and impact on that use.

Question 9: Are there any other bands that are not in Table A6.1 for which you think we should be considering their pros and cons for mobile broadband and for existing applications using this spectrum? :

Not that the CAA are aware.

Question 10: What are your views on bands which should be a priority for consideration for mobile broadband?:

In the view of the CA priority should be given to those bands that are either contiguous with current allocations, already allocated to the mobile service or previously made available through commercial arrangements for a terrestrial mobile system.