26 GHz Study Contract Definition

Background

Globally harmonised cellular mobile bands above 20 GHz are needed to cover locations of exceptionally high traffic density and meet super-peaks of traffic demand. They might be termed "capacity" bands to distinguish them from bands in the lower part of the radio spectrum used to provide national or wide area coverage (which might be termed "coverage" bands).

There would be a serious breakdown of geographic and band spectrum efficiency if the model of auctioning licences on a national basis were to be applied to the 26GHz band. The geographic spectrum efficiency could fall as low as 3% and band spectrum efficiency to 20-25%.

The Spectrum Policy Forum is considering a highly efficient innovative new spectrum release model for the 26GHz band that couples two complementary spectrum licensing regimes. One regime will be for the zone outside which its unlikely demand will exceed supply and where inside the zone a spectrum auction is the most suitable release mechanism to allocate the available spectrum. A second licensing regime will apply where the demand is low enough for a simple first-come-first-served approach to work well as a release mechanism. This new spectrum release model for the 26 GHz band also envisages all unused spectrum at any location to be shareable using a "club licensing" model and usable opportunistically by those with authorised licenses in that band (obtained either at an auction or on a first-come-first-served basis).

The proposed model has only been defined in very broad terms. The next task is to begin to fill in the next level of detail. The purpose of the study is to deliver proposals to facilitate building consensus around the essential points of detail and for the purpose of the study the band shall be assumed to be 26.5-27.5 GHz. The study has two parts:

Part 1 Define the zones within which the two release mechanisms would apply, respectively.

Part 2 Explore means for further improving spectrum efficiency within both zones.

Part 1 Defining the zones within which the two release mechanisms would apply

The explanatory note provides background, including references to Ofcom's earlier statements.

Based upon the best real broadband mobile traffic data accessible create a soft copy map that shows the area of highest traffic that cumulatively equals 3% of the UK surface area.

The 3% is a suggested starting point representing a likely lower bound. The contractor can propose a different value if it has evidence of more appropriate lower bound values, which is to be agreed prior to the production of the map.

Prior to the finalisation of the study, send the map and associated list of 100m grid squares to all members of the project steering group so that they have an opportunity to comment on whether the analysis has failed to capture any

essential locations to be included in a 26 GHz spectrum auction.

Part 2 Explore means for further improving spectrum efficiency within both zones.

1. Define the size of the exclusion zones overlaid on each BTS or set of BTS deployments, such that the probably of co-channel interference with a neighbouring spectrum user becomes manageably small. This study item should take into account deployment methods (mesh, point-to-point, cellular, fixed wireless access), mast heights, antenna gains and transmit powers.

2. Assess the likelihood of all holders of a licence that covers all the high traffic density areas wanting to deploy in a given such location (and, as such, being constrained to operate within each of their own licensed block rather than also exploiting spectrum not in use by other licensees at that location).

3. Assess potential automatic interference avoidance mechanisms to enable more spectrum sharing opportunities in the first come first served zones and more unused ("club") spectrum for sharing by respective licensees in both zones. Investigate whether 'slow' or 'fast' automatic avoidance mechanisms are best (accounting for a range of metrics and use cases) and – depending on the outcome of the analysis – answer the question of whether and under which conditions, it might be beneficial/viable to migrate/evolve from simpler 'slow' mechanisms to more sophisticated 'fast' mechanisms . The consultant may also highlight any other options for the licensees sharing the entire spectrum in a given location.

4. Assess whether licence durations (terms) should be different within the High Demand Zone and Low Demand Zone and whether licences should be regularly renewed within the Low Demand Zone to facilitate innovation and ongoing efficient access to 26 GHz spectrum.

Notes for bidders

- total budget is £25,000 (+Vat)
- bidders can have a call with members of the UK SPF drafting group to clarify points prior to submitting a tender
- individual bidders are not discouraged however given the data requirements we will prioritise organisations/group submitters
- the scoring system is:

Criteria	**Weight**
Understanding the requirements	20%
Relevant experiences	20%
Methodology and approach	20%
Project management	10%
Resources allocated (CVs)	20%
Price	10%

- unsuccessful bidders will receive their scores to help inform future tenders
- the successful contractor will be required to meet (in person or virtually) with the UK SPF drafting group to provide regular updates and feedback
- the successful contractor has circa three months from the point of being awarded the contract to supplying the final report
- the successful bidder is expected to work with the UK SPF secretariat to create a press release and publicise the report and its findings
- the draft report will be presented to the Steering Board scheduled for 14 January 2021
- the successful contractor is required to present the UK SPF Plenary with a summary of the report with slides at the plenary scheduled for 28 January 2021
- the report is to be published on the day of the Plenary

In proposals contractors are required to state

- contractors need to confirm they have access to crowd source or comparable mobile traffic data
- the total amount they require to complete the piece of research
    - of the above amount please state how much is allocated to the data requirements