Review of the Spectrum Management Approach in the 71-76GHz and 81-86GHz bands.

Consultation on the future management approach for the 70/80GHz bands.

EE's response to Ofcom's consultation

14th October 2013

Table of Contents.

1. Introduction

EE is pleased to respond to the Ofcom document 'Review of the Spectrum Management Approach in the 71-76 GHz and 81-86 GHz bands'.

Ofcom has overlooked an important future source of demand

EE suggests that Ofcom has overlooked aspects of demand for 70/80GHz band or near 70/80GHz Band spectrum. In particular the use of radio solutions to support C-RAN, LTE Base Station, Common Public Radio Interface (CPRI) has not been considered. This application which is likely to emerge in the next three to five years will require significant numbers of multi gigabit radio links to support base station, base band, connectivity. Exclusive allocations will be needed for this. Ofcom needs to consider how to support this potential requirement, if not as part of the current 70/80GHz band changes, then potentially as part of a near future release such as the 92GHz band.

Ofcom should review the proposed interim pricing structure for the coordinated spectrum

EE suggests that changes to the proposed interim pricing of Ofcom coordinated spectrum requires further consideration. Pricing should be based on the nearest available Ofcom coordinated band in terms of frequency i.e. 55GHz. This would suggest a modification of the proposed interim pricing regime.

Ofcom needs to urgently update the self assignment registration process to make it fit for purpose

Ofcom should adopt an online registration system as the main method of application for 70/80GHz self assigned links. The current paper based system is out dated and causes delay to operators in deploying links.

2. Discussion

EE notes Ofcom's thorough preparatory work in preparing this consultation. In spite of this preparation we suggest that Ofcom has overlooked important aspects of demand for 70/80GHz band or near 70/80GHz band spectrum. In particular the use of radio solutions to support C- RAN, LTE Base Station, Common Public Radio Interface (CPRI) has not been considered. This application which is likely to be deployed in the next three to five years will require significant numbers of multi gigabit radio links to support base station, base band connectivity. Exclusive allocations will be needed to support CPRI connectivity as this application requires certainty and flexibility of channel assignment and interference management, not deliverable in mixed bathing spectrum. Ofcom should consider how to support this requirement, if not as part of the current 70/80 GHz band changes, then potentially as part of a near future release of fixed link spectrum such as the 92GHz band. Early certainty in this matter is desirable and a specific statement on the issue of CPRI support should be made as part of Ofcom's response to this consultation.

EE suggests that the proposed interim pricing of Ofcom coordinated spectrum requires further consideration. For consistency pricing should be based on the nearest available Ofcom coordinated band in terms of frequency i.e. 55GHz. This would suggest a modification of the proposed pricing regime by multiplication of the proposed values of the current AIP band price modifier for the 55GHz band and division by that of 38GHz. This would indicate a £300 per annum fee for a 500MHz channel and pro rata £150 for 250MHz etc.

The current registration system for self assigned links is clearly in need of overhaul and update. EE has found the current system subject to errors in translation of paper based forms and subject to delay in update of registration on the web site. The length of time the paper based process takes has proved unsuitable for EE as an operator even in the context of trial deployment of 70/80GHz links. Ofcom should develop a suitable web based portal for application and registration. It is desirable that the process should offer real time progression from application to registration and payment/licensing.

3. Consultation questions

EE's responses to the consultation questions are as follows:-

Question 1

Do you have any additional information to provide to that presented in this Consultation that you believe Ofcom should consider? If so please provide clearly evidenced views. Are there any other issues that you believe Ofcom should have considered?

EE suggests that Ofcom has overlooked aspects of demand for 70/80GHz band or near 70/80GHz band spectrum. In particular the use of radio solutions to support C- RAN, LTE Base Station, Common Public Radio Interface (CPRI) has not been considered. This application which is likely to be deployed in the next three to five years will require multi gigabit radio links to support base station, base band, and connectivity. Exclusive allocations will be needed for this. Ofcom needs to consider how to support this potential requirement, if not as part of the current 70/80 GHz band changes, then potentially as part of a near future release such as the 92GHz band.

Question 2

a)Do you agree with our proposals to offer a mixed solution that allows stakeholders to choose between the currently available self coordinated authorisation approach and a new Ofcom coordinated approach for the band.

EE supports the mixed solution approach. Up to this point users who have had a requirement for coordinated, protected fixed links of high bandwidth have had no available Ofcom coordinated spectrum to support such applications. The evolution of 4G networks has created just such a requirement by mobile operators for protected high bandwidth links in high traffic areas and Ofcom's proposal is a welcome response to the emergence of this requirement.

b) Do you agree with the segmented band plan with the split of 2 x 2 GHz and 2 x 2.5GHz for Ofcom coordinated and self coordinated approaches respectively?

EE supports a minimum 2x2GHz allocation to coordinated spectrum. We agree that it is desirable to allow sufficient frequency diversity to allow multiple operator use at busy sites. An allocation smaller than 2x2GHz would undermine confidence in the sustainability of the coordinated band for long term use.

c) Is the guard band size of 250MHz considered appropriate between the two bands?

EE provisionally supports a minimum 250MHz guard band size. In combination with an assignment policy of allocating coordinated links from the bottom of the band upwards and a mandated channel plan for the self coordinated spectrum ,it should facilitate reasonably efficient protection of the coordinated spectrum. EE does have residual concerns over the self assignment of very large bandwidth systems and their impact on coordinated systems. Ofcom should, as part of due diligence for the change, undertake a study of the dynamics of possible interference and publish this as part of the consultation response.

Question 3

a) For the Ofcom coordinated part of the band, do you agree with the proposal to make available channels of 500MHz and 250MHz (with smaller channels being made available when the standards are completed) and to make these channels available in up to 1GHz in the first instance?

EE supports a channel range of 62.5MHz through to 500MHz.1GHz should be allowed in the first instance but subject to periodic review. It is desirable that unnecessarily high bandwidth low modulation links are not deployed on mass to avoid inefficient use of the spectrum. Ofcom should investigate whether a soft assignment policy of separating high and low bandwidth links would improve efficiency.

b) Is there a requirement for channel sizes greater than 500MHz in the coordinated block? Please submit evidence to support your view.

500MHz should be sufficient for current and medium term use. Please see answer to a)

Question 4

a) Are there any aspects of the current self coordinated licensing and link registration process that could benefit from improvements? Please provide specific information and reasons for how your suggestions would improve the process.

Ofcom should adopt an online registration system as the main method of application. Any retained paper based system should be based around Ofcom staff inputting data to the online registration portal. Confirmation of registration and licence/payment should be in real time. The current paper based system is cumbersome and slow with delay in update of registration details.

Ofcom should consider the level of assistance it provides to self assignment applicants. A simple assessment of number of links within a defined radius to alert users to the presence of nearby links, with a check box requiring the applicant to confirm that they have carried out relevant coordination to assess interference should be included in online registration.

b) Should Ofcom consider mandating the CEPT channel plan, ECC/REC/(05)07 for the self coordinated block? Explain clearly the reasons to support your view.

EE believes mandating CEPT channel plan ECC/REC/(05)07 would on balance be beneficial in providing a framework for self assignment to help minimise error and increase efficiency of spectrum use. EE believes that Enterprise users with little experience of radio systems would benefit from such a framework to assist them in effective self assignment and equipment choices. EE believes that use of flexible channel arrangements in increasingly dense deployment will become more and more unmanageable and unsustainable for such users in terms of them being overly complex to efficiently understand and coordinate.

c)Are the technical parameters shown on the register sufficient to enable self coordination? Should Ofcom consider presenting additional parameters on the register? If so, which parameters and why?

The opportunity should be given to allow the ETSI spectral efficiency class to be entered to give indicative modulation, receiver sensitivity and transmit mask performance. This would allow better assessment of likely interference to and from links during the self assignment process. Ofcom have indicated their own use of this information (by mapping) to facilitate incorporation of existing links into the proposed coordinated section of spectrum.

EE also supports the inclusion of polarisation to allow better understanding of the isolation between self assigned links.