EuroGrid, Inc.

Responses to Ofcom's Consultation

"A Review of the Spectrum Management Approach
in the 71-76 GHz and 81-86 GHz Bands"

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?

EuroGrid Inc. ("EuroGrid") is a wireless network owner and operator that uses 70 / 80 GHz band links registered with Ofcom to provide high-capacity, low-latency network services to customers in Great Britain. EuroGrid has been able to launch and quickly grow its network due in large part to the efficiency of Ofcom's self coordinated licensing regime and the flexibility it affords licensees to respond to market demands and to deploy innovative services. And EuroGrid is not alone – applications providing enterprise solutions are flourishing in the 70 / 80 GHz band, with over 500 links registered to date. Indeed, as Ofcom notes, applications that utilize the band provide services to: "Campuses (business, health, education); Security (CCTV); Computing (distributed servers/storage, LAN extension), and last mile connectivity to replace fibre and for high frequency trading . . . ." By any reasonable standard, the self coordinated licensing regime has been a tremendous success, and there simply is no compelling, clearly evidenced reason to change course now. Setting aside spectrum in the event that it may be needed for mobile backhaul in the future, in the complete absence of any current demand, is less than persuasive.

Should Ofcom nevertheless decide to implement its "mixed solution" proposal, it should take care to ensure that it does not inadvertently hinder incumbent licensees in the self coordinated portion of the band. Toward this end, EuroGrid urges Ofcom to more fully explain the scope of incumbent licensee's grandfathered rights, and to clarify the extent to which incumbent users may expand and modify their existing networks while maintaining grandfathered and priority status with respect to other registrants.

Specifically, Ofcom should clarify the extent to which grandfathered link registrants may make minor changes to link registration data without jeopardizing their priority rights. For example, Ofcom should clarify that a link registrant may, upon proper notification to Ofcom, make the following minor changes to link registration data without altering its registration time and date for purposes of determining first-in-time and/or grandfathered/priority interference protection:

- Any change in a transmit or receive antenna location that does not exceed 100 meters;
- Any change in antenna height that does not increase the antenna's height above ground level by more than 3 meters;
- Any change in transmit or receive antenna azimuth that does not exceed 35 degrees; or
- Any change in power level, frequency tolerance, emission type, bandwidth, equipment type or manufacturer that can be implemented without causing harmful interference to other registered links.

Finally, Ofcom should afford licensees sufficient flexibility to exceed these thresholds, and to maintain grandfathered/priority status, where necessary to replace a failed link that is an integral part of a larger network. More specifically, networks are deployed in a "point-to-point" design, involving numerous sites in serial configuration. If, during pre-construction, one link becomes unviable for any number of reasons, a replacement link of similar azimuth and spectrum size

must then be procured. In circumstances like these, the loss of one link can often lead to the requirement of substituting multiple replacement links to satisfy interference and line-of-sight concerns. Setting aside 2 GHz of spectrum for an Ofcom-coordinated block will thus greatly impede the operational flexibility of grandfathered networks to respond to unforeseen circumstances. In sum, the need to replace one failed link should not be allowed to disrupt the integrity of a grandfathered, point-to-point network.

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?

EuroGrid's preference is to leave the existing self coordinated authorisation regime in place for the entire band. Absent this approach, EuroGrid urges Ofcom to do the next best thing, which is to ensure that incumbent operations in the self coordinated block, which Ofcom describes as flourishing, are allowed to continue unabated and with maximum flexibility going forward. In addition, to the extent that Ofcom adopts its proposal for a coordinated block, Ofcom should not provide licensing preferences dependent on the nature of the applicant's proposed use of spectrum. For example, carriers proposing to use coordinated band spectrum for mobile backhaul purposes should not receive preferential treatment relative to entities like EuroGrid that provide on-demand, enterprise-level, private line services.

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

No comment.

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

EuroGrid does not herein express a position regarding the efficacy of a 250 MHz guard band. However, EuroGrid requests that Ofcom confirm that the grandfathered link registrants who are permitted to utilize both the coordinated and self coordinated bands under their grandfathered registration are not required to protect any guard band that Ofcom adopts.

Question 3:

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

The principal advantage of operating in the 70 / 80 GHz band under the current licensing regime is that carriers may utilize extra wide channels that afford very high capacity links with very low latency. For example, today's equipment can provide data speeds of up to 4 gigabits per second are possible using 4.5 GHz of bandwidth in the 70 / 80 GHz band, but this number declines to approximately 2 gigabits per second or less when bandwidth is reduced to 2.5 GHz. Future technology may allow for an increase in bandwidth to 10 gigabits per second, but that would require sophisticated modulation schemes, as well as the usage of the entire 5 GHz of spectrum in the 70 / 80 GHz band, Further, while Ofcom notes that recent technology trends suggest that next generation equipment will be able to deliver higher data rates using smaller

channels, it is not commercially evident in the near- or mid-term that such equipment using 250 MHz or 500 MHz channels will be able to replicate the performance capabilities that can be achieved with current generation equipment using wider channels. Moreover, the proposed channelization scheme will foreclose the ability of licensees/manufacturers with equipment capable of operating only in wider bands from utilizing their equipment going forward to establish and register new links. For these reasons, to the extent that Ofcom adopts the proposed channelization scheme, applicants for use of coordinated spectrum should be permitted to seek to use and aggregate together multiple contiguous channels, including the potential of bridging together self coordinated and Ofcom coordinated links to constitute a contiguous 4.5 GHz of bandwidth. Such aggregations should be subject to an Ofcom approval process that takes into consideration the specialized capacity and operational needs of grandfathered systems, as noted above

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

Yes. See response to previous question.

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 update its current system to allow online submissions and real-time review of link registration data. Under the current system, there is often a delay between the date on which a licensee submits a registration and the date on which the link data is available for review on Ofcom's web site. An online database would enable network designers to immediately identify available pathways, and to avoid routes with interference potential, greatly improving the efficiency of network planning in the self coordinated portion of the band. Also, the online database automatically should accept registrations proposing to utilize equipment that previously was approved by Ofcom as being compliant with Ofcom's applicable equipment standards. This will enable registrants to determine what types and manufacturers of equipment already have been approved by Ofcom without each such registrant being required separately and potentially to redundantly seek approval of equipment. Ofcom should remain the sole administrator of the registration database in order to better protect the integrity of link registration data and to minimize transaction costs.

EuroGrid also supports a construction deadline and construction notification requirement for each registered link as a simple means to ensure that spectrum rights are used to provide service and are not warehoused for anti-competitive purposes. Specifically, Ofcom should establish an eighteen-month construction period for each grandfathered link beginning on the effective date of the new rules, and a twelve-month construction period for each new link registered thereafter beginning on the link registration date, for both self- and OFCOM-registered bands. In addition, no later than the end of the applicable construction period, licensees should be required to submit a notification certifying to Ofcom that the registered link has been constructed and placed in operation. Any link registration that is not timely-constructed, or on which service has not been provided for one year, should be deleted from the registration database in order to make the spectrum available for other users.

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.

Ofcom should not mandate the CEPT channel plan for the self coordinated block. EuroGrid and others are presently able to achieve very high data rates utilizing large blocks of non-channelized spectrum. Any channelization scheme that limits the amount and configuration of spectrum that a registrant may use will adversely impact these capabilities. Moreover, at minimum, Ofcom should wait until the CEPT channel plan has been implemented by multiple administrations before considering further this channel plan. This will enable Ofcom to better evaluate the operational advantages and disadvantages of the CEPT channel plan in a real world setting. Further, any international harmonization benefits that ultimately can be gained from adoption of the CEPT channel plan cannot be realized until the channel plan is widely adopted by other administrations, which has not yet occurred.

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?

Ofcom should collect the following additional items of data in the registration database in order to improve to the self coordination process:

- Link polarity
- If a 12-month construction period is implemented, then date the link was fully constructed and operational