

**Organisation: Zinwave**

**Question 1: do you agree with the proposal to vary Vodafone's 900 MHz, 1800 MHz and 2100 MHz licences and H3G's 2100 MHz licence so as to permit those frequencies to be used to deploy 4G technologies?**

Yes. Zinwave believes that all spectrum licensing should be done in a technology-neutral way. This encourages technology competition which drives up spectrum utilisation efficiency as well as service diversity.

**Question 2: do you agree with the proposal to vary Telefónica's 900 MHz, 1800 MHz and 2100 MHz licences and EE's 2100 MHz licence so as to permit those frequencies to be used to deploy 4G technologies where we receive formal requests to do so?**

Yes.

**Question 3: do you agree with the proposal to vary the 900 MHz licences to increase the maximum power limit for UMTS by 3dB from 62 dBm e.i.r.p. per carrier to 65 dBm e.i.r.p. per carrier?**

Yes. The risks of increased interference and health concerns are negligible compared to the incremental coverage benefit. However, the vast majority of voice and data traffic now occurs within buildings and such a small increase in power is insufficient to make a real difference to in-building coverage. Zinwave believes that Ofcom should be looking at innovative strategies to encourage wider deployment of technology-neutral multi-operator in-building infrastructure.

**Question 4: do you agree with the changes proposed in section 5?**

Yes. However, the coverage obligations only apply to outdoor coverage and the vast majority of voice and data traffic now occurs within buildings. Zinwave believes that Ofcom should be looking to more closely match the coverage obligations with the locations that mobile customers actually want to make use of the services. These obligations should be framed in such a way that MNOs are encouraged to make maximum use of technology-neutral infrastructure to prevent "micro-monopolies" forming within a given locality.

**Additional comments:**

Zinwave is a Cambridge-based manufacturer of Distributed Antenna Systems (DAS). Zinwave's innovative, wideband, active DAS is used in a wide variety of buildings worldwide to provide multi-service coverage that is both technology and frequency agnostic. Zinwave believes that Ofcom's proposals will allow MNOs to utilise their licensed spectrum in whichever way provides the most efficient coverage and capacity for their customers. As the majority of these customers wish to use their devices inside buildings, the availability of technologies such as Zinwave's DAS will allow multiple MNOs and building owners to service the maximum number of customers in the most cost effective manner.

