Response to the Ofcom Consultation on Hybrid sharing: enabling both licensed mobile and Wi-Fi users to access the upper 6 GHz band

The European Utilities Telecoms Council (EUTC), representing European electricity and gas generation, transmission and distribution companies welcomes the opportunity to respond to Ofcom's Consultation: Hybrid sharing: enabling both licensed mobile and Wi-Fi users to access the upper 6 GHz band.

Our repsonse relates to Question 9 on the potential impact of hybrid sharing of the band.

Utility Fixed Link radio Tower

Interference to fixed services

EUTC Members, including those in the UK, use 6 GHz fixed links for critical network operations. These links are often planned to 99.999% availability as is required when supporting critical national infrastructure.

To place this in context, most UK citizens / consumers expect their electricity supply to be in the region of 99.999% reliable, so it is appropriate that the telecommunications underpinning the operation of these energy networks perform to a similar standard.

By contrast, mobile networks are classically designed to operate in the region of 90%-99% availability. Thus, where the consultation uses terminology such as 'likely to be a challenge' and 'risk of harmful interference to incumbent services', these phrases are construed very differently in the mobile and fixed services context. For WiFi, as a licence-exempt and unprotected service, it may be expected to have some outages, a situation unacceptable in high availability fixed link.

Detecting and measuring reduction in availability

The challenge in allowing sharing between high availability and 'best endeavours' type services, especially involving mobile or itinerant services is that determining the level of reduction in the quality of the high availability service is very difficult, requiring accurate and detailed measurements over a long period of time. By the time any interference has been confirmed to the level required by Regulation certainty, the damage to the availability of the high quality critical service has already been caused.

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Enforcing operational constraints

Enforcing operational constraints on widely deployed equipment, often installed or operated by consumers and non-telecoms specialists is a key challenge.

Restrictions on outdoor mobile services are difficult to define precisely because of geography and weather dependent propagation conditions, especially when assessing interference into a service designed to operate at up to 99.999% availability.

For 'indoor use', the definition is difficult to determine precisely in regulatory terms, and variation in construction materials and formats of buildings result in propagation parameters being very indistinct.

Managed databases

Experience in the use of databases to determine times and conditions when a certain frequency can or cannot be used, and the associated conditions has not been very successful in the context of consumer or non-telecoms specialist users. The example of sharing UHF TV spectrum with other users in the 'White Space' initiative in the UK has not been deemed a widespread success.

The best example of 'database' sharing in the UK might be thought to be where Programme Making and Special Events (PMSE) services share with other users, but this example illustrates well the complexity and cost of the arrangements if the sharing is to be successful and effective.

Reduction in the amount of fixed services spectrum, especially in lower frequency bands

If one looks at the diagram alongside from the Ofcom Fixed Wireless Strategy Consultation undertaken in 2017, the reduction in available spectrum accessible for fixed services becomes clear. The loss of spectrum at the lower end of the frequency spectrum is especially damaging for widely deployed critical services such as utilities as long link lengths are desirable to reach remote areas, and as an alternative resilient path in case of damage to copper or fibre cables. Because of the demanding latency requirements often required, satellite links are not an acceptable alternative.

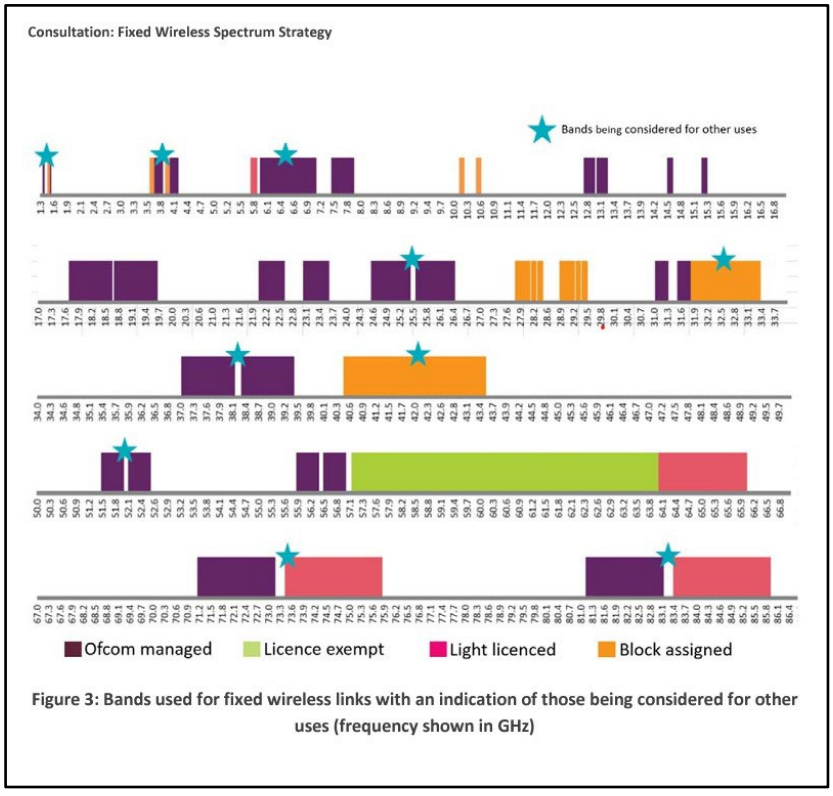

Figure 3: Bands used for fixed wireless links with an indication of those being considered for other uses (frequency shown in GHz)

As well as the lower frequencies being more suitable for long haul links, the propagation conditions are less susceptible to disruption from severe weather, especially intense rain episodes. With climate change generating ever more severe and frequent severe weather events, the loss of the lower frequency bands is especially concerning.

Summary

EUTC is keen to engage with Ofcom on behalf of its members to discuss these issues in the context of the stated intention to produce a further consultation for publication in 2024. We hope that that the incremental erosion of the spectrum available for fixed services, particularly in the lower parts of the frequency spectrum will be factored into Ofcom's deliberation, especially in the light of society's increasing dependence on reliable utility services and the impact of climate change on the provision of these services.

The European Utilities Telecom Council (EUTC)

The European Utilities Telecom Council (EUTC) is the leading European Utilities trade association dedicated to informing its members and influencing policies on how telecommunication solutions and associated challenges can support the future smart infrastructures and the related policy objectives through the use of innovative technologies, processes, business insights and professional people.

This is combined with sharing best practices and learning from across the EUTC and the UTC global organization of telecommunication professionals within the field of utilities and other critical infrastructure environments and associated stakeholders.

EUTC includes a number of UK utilities and industrial partners operating in the UK.

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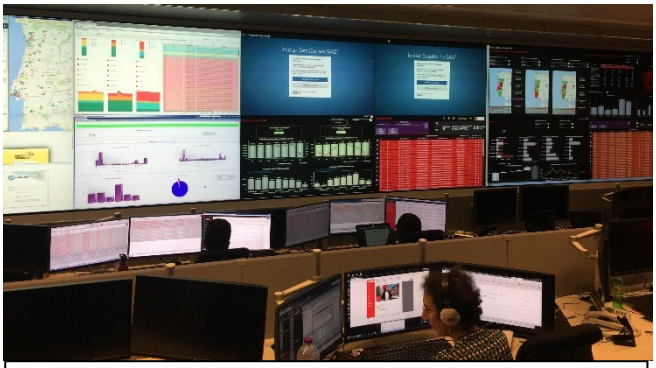

Typical utility distribution control room